Before the FEDERAL COMMUNICATIONS COMMISSION Washington, DC 20554

C Docket No. 02-6
le No. SLD Form 471 No. 868208 FRN 2366566 (FY 2012)

To: Chief, Wireline Competition Bureau

SUPPLEMENT TO REQUEST FOR REVIEW

Paul C. Besozzi Squire Patton Boggs (US) LLP 2550 M Street, NW Washington, DC 20037 (202) 457-5292

Counsel for Ben Hill County Schools

Dated: July 11, 2016

SUMMARY

Ben Hill County Schools ("Ben Hill" or "County") here by provides a supplement to its Request For Review ("Request") filed on June 22, 2016. The supplement provides documentation from the manufacturer of the VBrick System ("System"), which allows the delivery of stored educational video content to each classroom and public areas of the Ben Hill County Elementary School ("School") library. The materials provided reflect that the System can provide its intended functionality without use of the forty (40) set top boxes ("STB"), which would allow in classroom connectivity to stand-alone devices (e.g., televisions and projectors).

Thus, the System has in fact been used in accordance with E-Rate Program rules and as originally intended, even though the STBs were not installed with in-classroom televisions or projectors. Contrary to USAC's claims, Ben Hill "secured all necessary resources to make effective use of the [VBrick System] equipment and that ... equipment is [being] utilized for educational purposes."

Therefore, Ben Hill respectfully submits that there is no basis for recovery of any disbursed E-Rate Program support other than the \$24,516.00 associated with the STBs which were not in use. The County is prepared to reimburse USAC that amount. The USAC's effort to recover the balance of the amount disbursed (\$105,923.61) should be rescinded and the County should be permitted to retain that amount in full.

Before the FEDERAL COMMUNICATIONS COMMISSION Washington, DC 20554

In the Matter of)
In the Watter of	CC Docket No. 02-6
Request for Review of Decisions of the Universal Service Administrator by)
Ben Hill County Schools) File No. SLD Form 471 No. 868208 FRN 2366566 (FY 2012)
Universal Service Administrator by	,

To: Chief, Wireline Competition Bureau

SUPPLEMENT TO REQUEST FOR REVIEW

Ben Hill County Schools ("Ben Hill" or "County") hereby supplements its June 22, 2016 Request For Review ("Request") of a May 2, 2016 decision of the Schools and Libraries Division of the Universal Service Administrative Company (collectively, "USAC") denying the County's appeal to USAC of a Notification of Improperly Disbursed Funds Recovery Letter ("Recovery Letter"), dated February 17, 2016 ("USAC Denial").

The Supplement includes the following documents provided by the manufacturer of the VBrick System ("System") which is the subject of the Request:

- 1. A letter dated May 16, 2016 confirming that the set top boxes are not required for the delivery of educational video content to the classrooms (Attachment 1).
- 2. The Portal Server User Guide, with text explaining the delivery of content on the network highlighted on page 1 (Attachment 2).

3. Three documents (Attachments 3-5) with graphical explanations showing that the set top

boxes are for the display on non-networked televisions.

These materials from the System manufacturer lend further support to the conclusion that

the System has in fact been used in accordance with E-Rate Program rules and as originally

intended, even though the set top boxes were not installed with in-classroom televisions or

projectors. Contrary to USAC's claims, Ben Hill "secured all necessary resources to make effective

use of the [VBrick System] equipment and that ... equipment is [being] utilized for educational

purposes."

Therefore, Ben Hill respectfully submits that there is no basis for recovery of any disbursed

E-Rate Program support other than the \$24,516.00 associated with the STBs which were not in use.

The County is prepared to reimburse USAC that amount. The USAC's effort to recover the balance

of the amount disbursed (\$105,923.61) should be rescinded and the County should be permitted to

retain that amount in full.

Respectfully submitted,

Ben Hill County Schools

Padl C. Besozzi

Squire Patton Boggs (US) LLP

2550 M Street N.W.

Washington, DC 20037

(202) 457-5292

Counsel for Ben Hill County Schools

ATTACHMENT 1



5/19/16

To whom it may concern,

While the 8000-0113 VBrick Set Top Box brings value to our solution, it is optional and not required for the delivery of educational content to the classroom. The VBrick solution is intended to deliver content (including educational content) directly to end user type devices such as traditional computers and Apple Macintosh computers directly on the Local Area Network (LAN) of the facilities for classroom delivery.

If you have any questions regarding our partnership, please contact me.

Sincerely,

John Copeland
Vice President, SLED/Medical/Non-Profit Sales
VBrick Systems, Inc

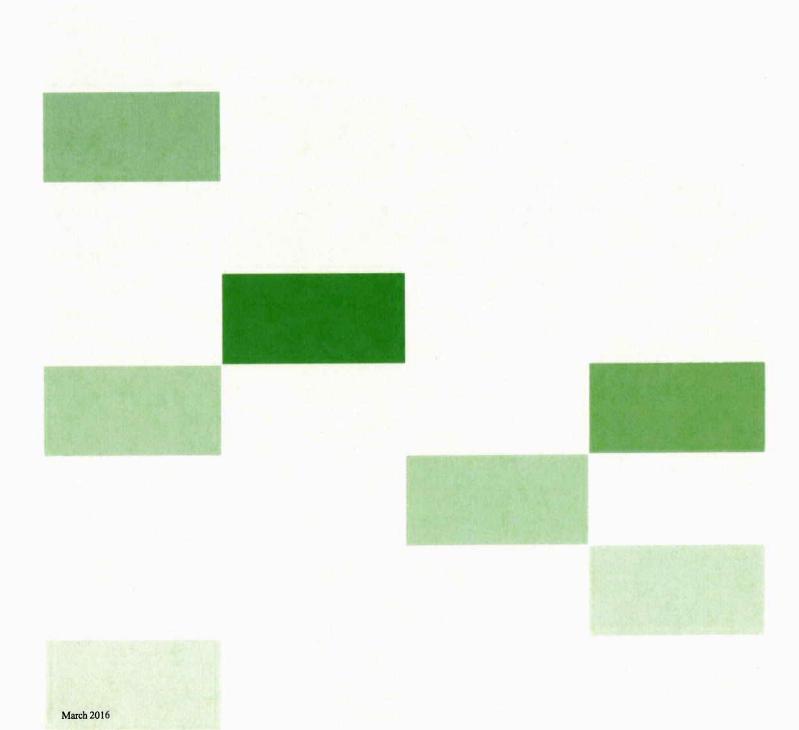
T: 832.437.4541 / M: 832.867.9397

ATTACHMENT 2



VBrick Enterprise Media System

VEMS Mystro® Portal Server v6.3.15 User Guide



Copyright

© 2016 VBrick Systems, Inc. All rights reserved. 2121 Cooperative Way, Suite 100 Herndon, VA 20171, USA

This publication contains confidential, proprietary, and trade secret information. No part of this document may be copied, photocopied, reproduced, translated, or reduced to any machine-readable or electronic format without prior written permission from VBrick Systems, Inc. Information in this document is subject to change without notice and VBrick assumes no responsibility or liability for any errors or inaccuracies. VBrick, VBrick Systems, the VBrick logo, VEMS Mystro, StreamPlayer, and StreamPlayer Plus are trademarks or registered trademarks of VBrick Systems, Inc. in the United States and other countries. Windows Media, SharePoint, OCS and Lync are trademarked names of Microsoft Corporation in the United States and other countries. All other products or services mentioned in this document are identified by the trademarks, service marks, or product names as designated by the companies who market those products. Inquiries should be made directly to those companies. This document may also have links to third-party web pages that are beyond the control of VBrick. The presence of such links does not imply that VBrick endorses or recommends the content of any third-party web pages. VBrick acknowledges the use of third-party open source software and licenses in some VBrick products. This freely available source code is posted at http://www.vbrick.com/opensource

About VBrick Systems

Founded in 1998, VBrick Systems is a privately held company that has enjoyed rapid growth by helping our customers successfully introduce mission critical video applications across their enterprise networks. Since our founding, VBrick has been setting the standard for quality, performance and innovation in the delivery of live and stored video over IP networks—LANs, WANs and the Internet. With thousands of video appliances installed world-wide, VBrick is the recognized leader in reliable, high-performance, easy-to-use networked video solutions.

VBrick is an active participant in the development of industry standards and continues to play an influential role in the Internet Streaming Media Alliance (ISMA), the MPEG Industry Forum, and Internet2. In 1998 VBrick invented and shipped the world's first MPEG Video Network Appliance designed to provide affordable DVD-quality video across the network. Since then, VBrick's video solutions have grown to include Video on Demand, Management, Security and Access Control, Scheduling, and Rich Media Integration. VBrick solutions are successfully supporting a broad variety of applications including distance learning and training, conferencing and remote office communications, security, process monitoring, traffic monitoring, business and news feeds to the desktop, webcasting, corporate communications, collaboration, command and control, and telemedicine. VBrick serves customers in education, government, healthcare, and financial services markets among others. VBrick products are manufactured in an ISO certified manufacturing facility.

Contents

Po	ortal Server v6.3.15 User Guide
	Preface
1.	Introduction
	Overview
2.	Home
	Home 9 Languages and Themes 11 Search 12 Content Approval 14 Adding Content 14 Approving Content 15 Flagging Inappropriate Content 17
3.	My Videos
	Favorites. 19 My Recently Viewed. 20 My Playlists 20 My Clips. 21 Timeline. 23 My Submissions 23 My Recordings 24
4.	All Videos
	All Videos. 25 Playing Video 33 Closed Captions 36 Content Metadata 36 Categories 38 Thumbrails 38

	Permissions
	Instances
	Sharing Video44
	Embed Video44
	Share Video45
	Recording Video46
	Controlling Live Streams
5.	Add Video
	Stored Video50
	Entered URL50
	Upload Video51
	YouTube Video Options53
	Live Video
	Entered URL58
6.	Using Blackboard with VEMS
	Overview
	Tagging Content
	Error Handling
	Blackboard Integration Use Cases
	Blackboard Integration after Adding a New Video
	Integrating a Stored Video with Blackboard
	Integrating Live Video with Blackboard
	On-Demand Recordings and Blackboard Integration6
7.	Scheduler
	Overview
	Schedule Privileges
	Event Type
	Schedule Recurrence
	Advanced Settings
	Content Metadata
	Finalize or Delete Schedule
	Viewing the Schedule
	Live Broadcast
	Rebroadcast Content
	Rebroadcast from a DME
	Tune STB to Existing Stream7
	Live Webcast
	Configuring Webcasts
	Lync Meeting
	Record
	Script
	Control Device

8. Authoring Live Webcasts Questions and Answers.....84 Authoring RMS/RMD Webcasts......87 Publishing Webcasts......87 Publishing RMS Silverlight Webcasts89 Viewing Webcasts......90 View Live Webcast90 View Stored Webcast......93 9. Channel Guide

Overview
VBrick Channel Guide Server9
Enabling the Channel Guide Server
Adding Channels99
Adding Custom Channels
Adding TV Channels9
Editing Channels9
Playing and Recording Channels
Playing Channels
Recording Channels10

10. Reporting

0 :	105
Overview	

vi

Portal Server v6.3.15 User Guide

Preface

This Portal Server User Guide is written for anyone who will be using or evaluating the VEMS Mystro Portal Server. This includes system administrators, software developers, network technicians, and end users in a variety of business environments. The VEMS Portal Server is a web-based portal for accessing and managing video assets including both live or stored audio and video files. The VEMS Portal Server is a key component in VEMS Mystro, the VBrick Enterprise Media System. The VEMS Portal Server provides a simple, intuitive interface that easily discovers available media assets in your network. The information in this document is arranged as follows:

1. Introduction	Provides a overview of the Portal Server. It explains desktop requirements and explains how to login, logout, and get help.
2. Home	Describes the functional elements on the home page and explains how to search for live and stored video assets.
3. My Videos	Describes the personalized content page that is different for each user. It has tabs for Favorites, Recently Viewed, My Recordings, and My Ingestions (which includes Content Approval for videos I have uploaded).
4. All Videos	Explains how to find, play, and share any available live or stored streams. It also explains content recording and content metadata.
5. Add Video	Explains how to add live and stored video from a variety of internal and external sources, including YouTube.
6. Using Blackboard with VEMS	Explains how to use a Blackboard integration with VEMS and describes specific use cases. You must have configured Blackboard for use with VEMS previously. This is explained in the VEMS Mystro <i>Portal Server v6.3.15 Admin Guide</i> .
7. Scheduler	Explains how to use the scheduler to create live broadcasts or webcasts, and how to rebroadcast or record stored content.
8. Authoring Live Webcasts	Explains how to create, schedule, and deliver rich media presentations (webinars with live video and synchronized PowerPoint content).
9. Channel Guide	Explains how to configure and use the Channel Guide which displays live channels and associated programming data.
10. Reporting	Explains how to run VEMS Mystro reports e.g. "Play Activity," "Content Inventory," etc. from the user interface.

Getting Help

If you need help, or more information about any topic, use the online help system. The online help is cross-referenced and searchable and can usually find the information in a few seconds. Use the tree controls in the left pane to open documents and the up and down arrows to page through them. Use the **Search** box to find specific information. Simply enter one or more words in the box and press Enter. The search results will return pages that have

all of the words you entered—highlighted in yellow (Internet Explorer only). The **Search** box is not case-sensitive and does not recognize articles (a, an, the), operators (+ and -), or quotation marks. You can narrow the search by *adding* words.

If you can't find the information you need from the online help, or from your certified VBrick reseller, you can contact VBrick Support Services on the web. Support Services can usually answer your technical questions in 24 business hours or less. Also note that our publications team is committed to accurate and reliable documentation and we appreciate your feedback. If you find errors or omissions in any of our documents, please send e-mail to documentation@vbrick.com and let us know. For more information about any VBrick products, all of our product documentation is available on the web. Go to www.vbrick.com/documentation to search or download VBrick product documentation.

Font Conventions

Arial bold is used to describe dialog boxes and menu choices, for example: Start > All Programs > VBrick

Courier fixed-width font is used for scripts, code examples, or keyboard commands.

Courier bold fixed-width font is used for user input in scripts, code examples, or keyboard commands.

This bold black font is used to strongly emphasize important words or phrases.

Folder names and user examples in text are displayed in this sans serif font.

User input in text is displayed in this bold sans serif font.

Italics are used in text to emphasize specific words or phrases.

Environmental Goals

At VBrick, we believe that running our company with a "green" conscience is good for the environment and good for business and that environmental awareness is an important part of the value we deliver to our customers. We recognize our responsibilities to our customers, partners, and employees, and also to the communities in which we live and work. We believe that the same ethics and principles that guide our daily business decisions should be applied to the environment as well. We design superior quality, high performance, and energy-efficient products and are continually looking for ways to conserve energy and reduce waste. As a company, we look for ways to be environmentally friendly in designing our products and operating our facilities, and by choosing partners and suppliers who are committed to sustainable development. You can help by recycling batteries and other consumables and by finding new and better ways to protect and preserve our environment. If you have ideas or suggestions that will help to reinforce our commitment to these goals, please let us know.

Chapter 1

Introduction

Topics in this section

verview	1
ogin	
ogout	
oles	
elp	6

Overview

VEMS Mystro® (pronounced my-stroh) is a web-based portal for accessing Live and Stored Video. It provides a simple, intuitive interface that allows you to navigate or search for and immediately begin viewing TV-quality video. You can access the VEMS Portal Server from Windows-based PCs, Apple Macs, or mobile devices. In general, the operation of the Portal Server is the same for Windows PCs and Macs with some subtle differences. This document is written from a PC perspective; some of the screenshots may be slightly different on a Macintosh. Please note that the VEMS Mystro user interface supports different "themes." The screen-shots in this document use the "light" theme. Note that content can be played back on a PC, a Mac, or a mobile device.



Figure 1. Home Page (Light Theme, English Language)

Optional Modules

Many of the Portal Server functions are optional and may not be included with your system. Each of these items is a separately-purchasable option and requires a license. If these options have not been purchased, that particular functionality will not be available on your system. For example, if you do not have a Scheduler license, the Scheduler pages will not be shown on the VEMS interface. All of the items in the following table require a license from VBrick.

Table 1. Optional Portal Server Modules

Module	Description	
Recorder	Records 2, 10, or 40 concurrent streams depending on your license.	
Transcoder	Each server includes one transcoding license, additional licenses can be added for additional concurrent transcoding.	
Scheduler	Lets you schedule recording, broadcasts, webcasts, etc. in advance.	
Channel Guide	Shows live channels with programming data in a TV-like environment.	
Presentation	Used to create rich media presentations with PowerPoint slides and a video stream.	
Zones	A certain number of addressable zones are available without charge. Additional zones require a separate license and fee.	
Learn360	Enables VEMS to import and play Learn360 educational content from the cloud.	
Discovery Education	Enables VEMS to import and play Discovery Education content from the cloud.	

Desktop Requirements

The following requirements show what is required on each *end user* desktop in order to run the Portal Server client interface. For more information on browser and device support, view the latest VEMS Release Notes and Operating System, Browser Compatibility, and Mobile Device Support.

Table 2. Desktop Requirements

PC Type	Requirements	
Windows PCs	 Windows XP, Vista, 7, 8. 750 MHz Pentium III processor (Pentium IV required for H.264). 512 MB RAM (1 GB recommended for H.264). SVGA video card 1024x768, video card acceleration and 32 bit color recommended. Minimum 250 MB hard disk space for installation. Microsoft Windows Media Player 9.0 or higher. DirectX Media Version 8.1 and higher. Browser may vary depending up OS version. See the latest Release 	
	Notes for compatibility.	

РС Туре	Requirements
Macintosh PCs	Mac OS X 10.5 or higher for Intel-based Macs.
	Browser may vary depending up OS version. See the latest Release
	Notes for compatibility.
	QuickTime Player 6.0 or higher.

Downloaded Components

Depending on the platform and browser you are using, you may need to download additional components from VBrick. Be aware that if you do not download the required components for a particular encoding format (for example H.264), files encoded in that format will be displayed on the client interface but will not play.

Table 3. Downloaded Components

Platform	Comments	
Windows	The Portal Server uses VBrick StreamPlayer software-based components to decode video streams. Depending on how your system is configured, the Portal Server may need to download components to your computer the first time you click on a stream—no download is necessary for subsequent access. You must answer Yes to security requests when prompted to download components. The Portal Server may require the installation of multiple components. If you check Always trust content from VBrick Systems, any required components will be automatically downloaded the next time they are needed. After a download, you don't need to restart—just close the browser.	
Macintosh	The Portal Server may need to download components to your computer the first time you click on a stream. If so, the Home page (see Figure 1) displays a popup window prompting you to download components that are appropriate for your computer. If you agree, these components are automatically installed and no additional download is necessary for subsequent access.	
Firefox	Firefox users will also be prompted to install additional components the first time you launch a stream—if you are configured to receive these download components. Links for the appropriate stream types (WM, and/or H.264) will be displayed on the player page. These additional plugins must be installed.	
iPad	Uses native components. No download is required.	
iPhone	Uses native components. No download is required.	
Android	Uses native components. No download is required.	

Login

The VEMS Portal Server Home page is automatically displayed when you login with a valid **Username** and **Password**. All VEMS Portal Server functionality and commands are available from this page but you may not have access to all features and functions depending on your user privileges. For example, you may not be able to access certain content and may not see certain functionality (for example the Scheduler). *Note that after a configurable number of*

unsuccessful login attempts, you may be locked out. Contact an administrator if you have trouble logging in.

Note If you have multiple LDAP servers used for authentication you will need to select your server from the dropdown that is automatically displayed. If you are not sure which server to select, contact your system administrator.

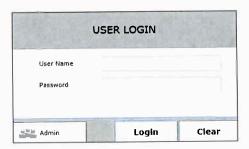


Figure 2. Login Window

- ▼ To launch the Portal Server home page:
- 1. Open a browser that is appropriate for your operating system. Supported browsers for Windows and Macintosh PCs are shown in Table.
- 2. Enter the Portal Server hostname or IP address (e.g. http:// <vems_servername>) in the address bar. (If your system is configured with additional security you may need to enter https. Contact your system administrator if necessary.)
- 3. Select User or Admin as appropriate (see Figure 2).
- 4. Log in with a valid User Name and Password to launch the Portal Server Home page.

Default User Name = admin

Default Password = adminadmin

As explained above, the Portal Server may need to download additional components the first time you click on an (H.264) stream. If prompted to download components, you must answer **Yes** to the security requests.

5. Use the navigation bar at the top of the page to access all Portal Server functionality. All of the features and functions are briefly described below (Table 4) and explained in detail later in this guide. Remember that depending on your privileges you may not have access to some functions, for example the Scheduler, in which case this tab is not shown on the navigation bar in the user interface.

Table 4. Portal Server Pages

Page	Description
Home	This page opens every time you login. From here you can navigate to any other pages.
My Videos	This page is personalized for the currently logged in user. It displays favorites, and recently viewed streams and recordings.
All Videos	This page provides access to all live and stored videos you are authorized to play and record.
Add Video	This page lets you add live video and stored video from a variety of sources including YouTube (if you have permission).
Scheduler	This page lets you schedule live broadcasts, rebroadcasts of existing content, live webcasts, and recordings of live events.
Channel Guide	This pages lets you view channels and programming data in a live programming schedule.

Logout

The **Logout** command logs you out of the application and lets you log back in as a different user. This may be necessary to gain access to certain functionality. For example, some users may not be allowed to create thumbnails and you may want to login as a user who has the permissions to do this.

Roles

VEMS Mystro uses a role-based permissions model to determine what content you will be able to see and what functionality you will be allowed to see and use. In all cases, if you do not have permission to view certain content or player controls, that video or control will not be shown on the user interface. Similarly if you do not have permission to use the Scheduler, the Scheduler tab will not be shown on the navigation bar at the top of the page. Role-based permissions also apply to community tools and other features as well. For example, you must

be a Content Admin to create thumbnails and you must be a System Admin to set Featured or Required videos.

Table 5. Role-based Permissions

Role	Description		
System Admin	Complete access to all admin and client functions.		
User Admin	Complete access to all admin and client functions but cannot assign roles or permissions.		
Scheduler ¹	Complete access to client and scheduler functions. No access to admin functions.		
Channel Guide Admin ¹	Access to the following functions: Channel Guide Admin Content Admin Featured Content Admin Publisher Services Required Content Admin User Services		
Content Admin ¹	Complete access to client functions. No access to admin functions.		
Content Publisher ¹	Access to all client functions except cannot: • Mark content as Featured or Required.		
Content Editor ¹	Access to all client functions except cannot: • Mark content as Featured or Required. • Cannot Add Video.		
Content Approver ¹	Access to the following functions: • Content Approval • User Services		
Content Approver Manager ¹	Access to the following functions: • Content approval. Can override the approval steps for immediate approval • Users Services		
Content Viewer ¹	 Access to all client functions except cannot: Mark content as Featured or Required. Cannot Add Video. Cannot add or edit metadata. 		

¹ No access to admin functions.

Help

Click on the Help button in the upper right corner of any page to display context-sensitive help for the page you are on.

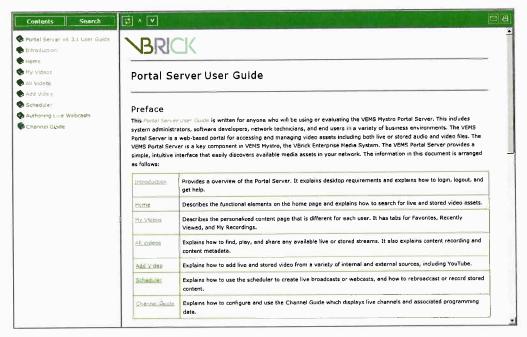


Figure 3. VEMS Mystro Online Help

8 VBrick Systems, Inc.

Chapter 2

Home

Home

The home page is launched as soon as you login with a valid user name and password. It lets you quickly access all of the features and functions of the application like the **Scheduler** or the **Add Video** page. Some Portal Server functionality and features may be restricted for certain users. If you are not authorized to **Add Video** or use the **Scheduler**, for example, those menu items may not be displayed or may not be functional on the Portal Server pages. Similarly if you do not have "record" privileges, you will not see a "record" button in the player window. Contact your system administrator if some functionality is not available or does not work as you would expect.



Figure 4. Home Page (Dark Theme, French Language)

rent for every user. It shows favorites, recently and recordings for the current user. all live and stored videos that you have w. live or stored broadcasts, Webcasts recordings. options that let you add live or stored video that to all viewers. or any live or stored content available on the
o all live and stored videos that you have w. clive or stored broadcasts, Webcasts r recordings. options that let you add live or stored video that to all viewers. or any live or stored content available on the
w. c live or stored broadcasts, Webcasts r recordings. options that let you add live or stored video that to all viewers. or any live or stored content available on the
r recordings. options that let you add live or stored video that to all viewers. or any live or stored content available on the
or any live or stored content available on the
1 UC 101 3 1 1 T
agged as "featured" by an administrator. It can y an administrator (using the "delete" control the of the title in preview window). If multiple as featured you can use the left and right arrows note to the next (or previous) video. If auto-cycle administrator you can automatically cycle through the start (left image) or pause (right image) icons
ared content.
re or stored streams in the same category. Use to navigate through related content. This feature by an administrator.
ICAAHD_True_13_02_01, e: 3/4/13 3:50 pm ner: VBrick System
ICAAHD_True_13_02_13 e: 3/4/13 3:50 pm ner: Vänck System
RTP_Iron_Eagle_13_02 te: 3/4/13 3:50 pm ner: VBnck System
RTP_Iron_Eagle_13_02 e: 3/4/10 3:50 pm
ner: VBndk System

10

Categories	Categories are similar to folders and this selection acts as a filter. You can filter the Popular , Required , or Recommended content by the "category" it is associated with. For example if you select Uncategorized and Required , it will display all required videos that are not associated with a category. For more about categories, see <u>Content Metadata</u> on page 36.
Expand Collapse All	Show or hide subcategories (i.e. subfolders). A blue triangle indicates that subcategories are present. Click on the icon to expand or collapse a single category.
Popular	The most popular streams (by number of views) played by all users.
Recently Viewed	This tab shows the streams that <u>all</u> users have recently viewed. When the page is full, the most recently viewed streams will replace those viewed earlier.
Required	Shows streams tagged as "required." Required streams will continue to be displayed until they have been viewed by the currently logged in user. The user who tagged the content has the option to delete that requirement. Authorized administrators can delete requirements tagged by any users.
Recommended	Shows streams that have been tagged as "recommended" by other users. The user who tagged the content has the option to delete that recommendation. Authorized administrators can delete recommendations tagged by any users.
Videos for Approval	When a user has content approval privileges, this tab will display all content that requires approval by an administrator before it can be viewed by other VEMS Mystro users.
Select Content For	Use to display category management controls. For details see Select Content For on page 30.
Stored Content	Stored content uses the following default thumbnail.
Live Content	Live content uses the following default thumbnail.

Languages and Themes

The drop-down controls in the footer at the bottom of the page let you select the language and theme for the user interface (as configured by an administrator). The language and theme selections apply to all user pages and are saved in a cookie for each user. You can also customize the interface and create your own themes. See the "UI Customizations" topic in

the Portal Server Admin Guide and the Portal Server Customization Guide for more information. The following language and theme choices are currently available from the user interface.

Language	English (United States)French (Canada)Spanish (Spain)
Theme	 Mystro Light Theme (see Figure 1 on page 1) Mystro Dark Theme (see Figure 4 on page 9)

Search

12

The Portal Server has a search feature that makes it easy to find video assets. There are multiple ways to search. For example you can perform a quick search from any page or you can use the All Videos page to make the search more granular. You can also search for Webcast Only presentations. You use the same steps for Live Video or Stored Video but you can only search in one of these groups at a time. The following steps explain how to search from the All Videos page but you can perform a quick search from any page.

Note Search results are displayed on the **All Videos** page. Once you perform a search the results will persist on this page until you perform another search.

- ▼ To search for specific video content on the All Videos page:
- 1. Select Stored Video or Live Video.
- 2. From the **Categories** list on the left, select one category (Figure 5) or the default **All** categories.
- 3. Select a Title, Description, Keyword, the default All, (or any of the custom keywords defined by your administrator).
- 4. Enter the search text. The text is not case-sensitive and you can enter any combination of words, numbers, and special characters. The search also support partial matches. For example a search for "tex" will also return "text" and "context."
- 5. Click the search button and the results will be displayed on a new page.
- 6. After a search, you can sort the results or change the view, then launch any stream by simply clicking on the title or thumbnail.



Figure 5. Search Results

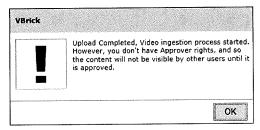
Categories	1	Select any Category (which includes subcategories) or All. A vertical bar indicates the currently selected Category. Use the expand button > to display subcategories, if present.	
Stored Video	O Live Video	Select live or stored. You cannot search live and stored at the same time.	
Live Video	& Stored Video	Select live or stored. You cannot search live and stored at the same time.	
Search Only	Limit the searc	ch. Select All, Clips, Playlists, or Webcasts.	
Filter Search	Filter the search. Select All, Title, Description, Keyword, or any custom (Additional Info) keywords added by an authorized user.		
Search text	The search text box is not case-sensitive. Use any combination of letters, numbers, and special characters to search for content using the selected filters.		
Clear_Filters		Resets the search text field to blank and the keyword filter to All.	
Search	Q	Click icon to launch a search with the selected filters and text.	
Clips Only	Check the box to search for stored video clips.		
Webcast Only	Check box to search for webcasts (presentations) only, either live or stored.		

Content Approval

Content Approval is an optional feature that may be configured at your site to allow for workflow approval of content being added to the system and to protect against objectionable or otherwise inappropriate content. If enabled, it means that all stored video (and clips) added to the system (and content flagged as inappropriate by viewers) will need to be approved by a user with content approval privileges before it can be viewed by other VEMS Mystro users. Content added by users who have content approval privileges does not need approval. Content approval also includes functionality that lets any viewer flag inappropriate content (see Flagging Inappropriate Content). As explained below, Content Approval must be configured by a system administrator on Mystro's Admin interface. See the "Content Workflow" topic in the Portal Server Admin Guide for complete details.

Adding Content

When Content Approval is <u>not</u> enabled, anyone with "add video" privileges can add video (or clips) to the interface as desired. When Content Approval is enabled, any added content or public clips (private clips can be added by all users) must first be approved by a user with content approval privileges before it will be shown to viewers on the user interface. In this scenario, when a typical user (<u>without</u> content approval privileges) uses the <u>Add Video</u> feature, a popup message (see below) will explain that the content will not be visible to other users until it has been approved.



The content will then be added to that user's My Videos > My Submissions tab (see below) and the approval state will change to reflect whether it has been approved or rejected by a Content Approver.



Approving Content

When a user with content approval privileges (for example a Content Approver) logs in, the user's Home page (Figure 6) will display an additional tab labeled Videos For Approval. When a video requiring content approval has been added (or inappropriate content has been flagged), they may also receive an e-mail alerting them that a video needs approval if this featured has been enabled. Each video will then need to be approved, rejected, etc. using one of the options explained below. Note that the options you see will vary depending on what permissions you have been assigned.



Figure 6. Content Approver Home Page

Items per page Choose the number of items to display per page.

Filter Content by Action	You can choose to filter the displayed items as follows: • Requires Approval • Rejected • Flagged as Inappropriate • Awaiting Workflow Assignment	
Email Settings	Use this pane to configure the Approval Batch Email Processing task. This task will send email to content approvers. If enabled, these settings will override the Task Scheduler settings for this task.	
	Finabled C Daily: Scheduled: Every: Sunday Monday Tuesday Wednesday Thursday Friday Saturday	
Approval History	This report shows the entire content approval history including dates, status, comments, etc. Use slider at the bottom of pane to see all data.	
	Approval History Approver Comments Date A Step 1 3/15/2013 PushToNextStep Default 3/15/2 Step 2 3/15/2013 - - -	
Approve	Video approved and added to the defined categories.	
Reject and Retain	Video rejected and will remain on original submitter's My Submissions page with an option to delete or resubmit.	
Reject and Delete	Video rejected and permanently discarded.	
Send to Manager	Sends a notification mail to the Content Approval Manager that content has entered a workflow and may need the manager's attention.	
Send to Previous Step	Send to the previous configured approver if a multi-step workflow template is being used.	
Assign Workflow	If the content is not automatically assigned to a workflow, use this button to assign a workflow.	
e e	C Default Content Approval Workflow Submit Cancel	

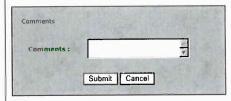
Change Workflow

A Content Approval Manager can use this option to assign the content to a different workflow. For example a specific piece of submitted content may be in the wrong workflow or may need executive approval before it can move to the next step.



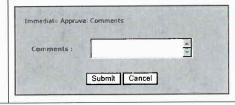
Push to Next Step

This option (with a required comment) will simply push the content to the next step in the approval workflow.



Immediate Approval

This option (with a required comment) will skip the remainder of the workflow and immediately approve the content. This option is only available to Content Approver Managers.



Flagging Inappropriate Content

Live or Stored Video. When Content Approval is enabled, any viewer can flag inappropriate content by clicking the "flag" icon while a stream is playing and tagging the content with rejection reason. When this happens the flagged content will be moved to the Videos For Approval tab on a content approver's Home page pending further action.

Note "Flag Inappropriate Content" is an optional feature in the Content Approval workflow that may be disabled by an administrator. If so you will not see the icon above the preview window in the user interface.





- ▼ To approve or reject inappropriate content:
- 1. Go to the Videos For Approval tab on a content approver's Home page to see content that is waiting for approval or has been flagged as inappropriate.
- 2. Click on the <u>Flagged As Inappropriate</u> hyperlink to see the rejection reason. Click on the video itself to launch the **Content Approval** page as explained above.

Chapter 3

My Videos

This page shows content that is personalized for the user who is currently logged in. It lets you keep track of all streams you have tagged as Favorites. It displays a list a of popular streams that have been Recently Viewed by other users. It displays My Submissions which includes uploaded videos, and approval history if Content Approval has been turned on. It also displays a list of recordings, FTPs, and ingestions in My Recordings (this tab is not shown if you do not have "record" privileges). The Categories column on the left shows the "categories" that the content in Favorites or Recently Viewed is associated with (categories are not associated with recordings). Categories are similar to folders and a video can be associated with one or more categories (or "uncategorized" in which case it is not associated with any category). The category you select acts as a filter. For example if you select All and Favorites, it will display all of the videos you have tagged as favorites, including those that are categorized and those that are uncategorized. A blue triangle > next to a category indicates that one or more subcategories are present.

Topics in this section

Favorites	19
My Recently Viewed	24
My Playlists	23
My Clips	21
My Submissions	23
My Recordings	21

Favorites

This tab shows all of the streams you have tagged as "favorites." You can tag an unlimited number of favorites simply by clicking the icon—you don't have to launch the video. Similarly, you can delete a favorite simply by clicking the delete icon on the Favorites tab.



My Recently Viewed

This page shows all content that the currently logged user has recently viewed. This includes stored video, live video, playlists, and clips. You can click on any listed item to view the content or you can select a Category to narrow the list. This page will be cleared at a configurable interval set by an administrator.

My Playlists

A playlist consists of one or more stored streams and/or clips. The streams or clips are concatenated into a single entity that is saved on the My Playlists page as well as in the Stored Video pages. Playlists can be configured with searchable metadata just like any stored stream. Playlists are available to PC and Mac users. They do not play on set top boxes or on iOS devices.

▼ To create a playlist:

- 1. Click the **Playlists** button on the **Home** page, the **All Videos** page, or any of the **My Videos** pages.
- 2. Choose one or more streams or clips by checking the boxes or use Select All or Clear All.
- 3. Click **Create** to display the Playlist Management page (see below). This page lets you create a new list or select an existing playlist from the dropdown. Then add a searchable Title (required) and Description.
- 4. If you click **Play All or Nothing**, the playlist will not be viewable if any of its content items are not available. If necessary, change the order in which they are played by dragging and dropping.
- 5. When you click **Submit** you will have the option to watch the playlist or add metadata.

6. When finished, the Playlist controls will automatically close.

Note You can use the playlist icon on the Stored Video page only to quickly add that single piece of content to the end of an existing playlist.

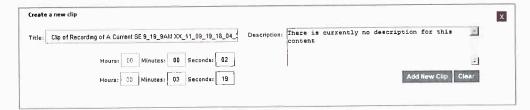


Note Playlists may be reordered by dragging and dropping however it can be difficult to drag an entry to the first or last positions. If you experience this problem, drag the entry to the 2nd position then drag the first entry down into the 2nd position. Similarly, an entry can be dragged to the 2nd-last position then the last entry dragged up to 2nd last.

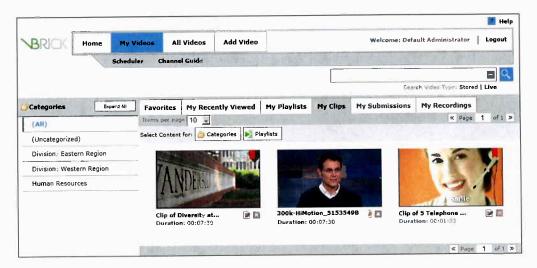
My Clips

Stored Video only. A video "clip" is a segment of a larger stored stream you have saved as a clip. It is similar to a bookmark except it has both a beginning and an end. A clip is similar to other content in that it can be featured, favorited, saved with metadata, etc. A clip begins when you click the icon and ends, by default, when the stream ends. Since a clip is simply a reference to the original stored stream, you can edit it to make it longer or shorter after it is initially created. When you create a clip, no extra content is added to the system.

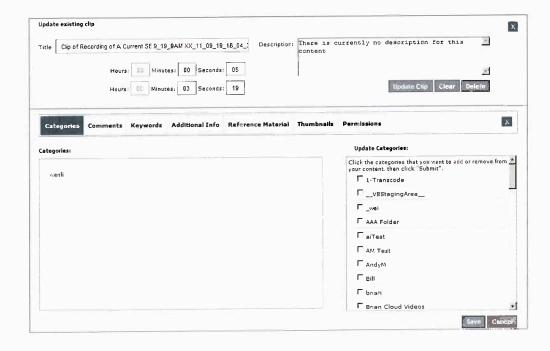
- ▼ To create a clip:
- 1. Launch a stored streamed and click on the Add New Clip icon.
- 2. When the following popup is displayed, enter a Title, a Description, and modify the start and end times as desired. By default the clip starts when you click the icon and ends when the stream ends.



3. When done, click Add New Clip and the clip will be added to the My Videos > My Clips.



Once the clip is on the My Clips page, the icon changes and you can edit the start or end times or change the content metadata. When created, a clip inherits the content metadata (Categories, Thumbnalls, etc.) of the original stream; when edited, the content metadata (e.g. categories, permissions, etc.) becomes unique to the clip. If you edit the clip be sure to click Update Clip and/or Save.

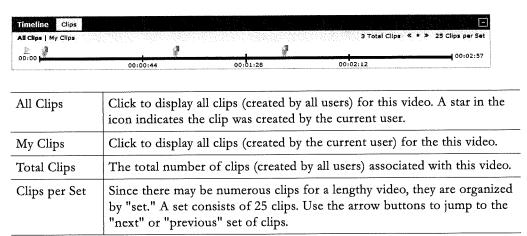


22 VBrick Systems, Inc.

Note Users may only make modifications (e.g. rename) to their own clips. You must be in "My Clips" to make any changes, additions, or deletions.

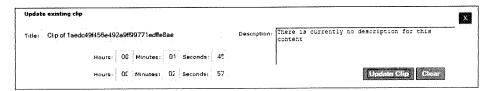
Timeline

The clip **Timeline** is displayed any time you play content that has associated clips. It shows all clips associated with the selected video. You can use the Timeline to visualize where the clips are located and to play or modify any clip. Click the icon on the far left to play the entire video. Click on any item in the Timeline to jump to that clip. Click the window controls on the right to collapse or expand the window.



Update Clip

To update a clip, click on the Timeline to play the clip, then click on the "Update Clip" icon above the player window. Then use the hours and minutes fields to modify the clip's location on the Timeline. Use the **Update Clip** or **Clear** buttons as necessary.



My Submissions

This tab shows all videos that have been recently submitted. It includes video that has been added or downloaded from YouTube, pushbutton recordings, and clips. If Content Approval is enabled, the submission will be tagged as Approved or Requires Approval. Videos requiring approval will not available to other users and will remain on the **My Submissions** page until they are either approved or deleted (typically by a user with Content Approval permissions).

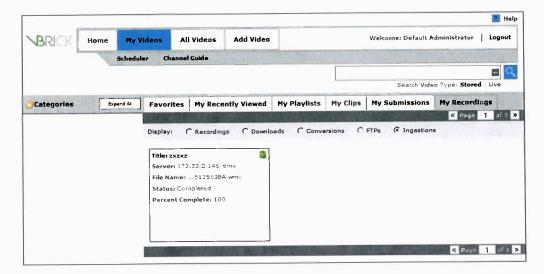


My Recordings

If you have "record" privileges, this tab will show the status all of your recent Recordings, FTPs, and Ingestions. These are separate steps in the record process. If the recording is successful, the results shown on these pages will be cleared after 15 minutes. If not successful, the results will persist so you can see where the recording failed. In all cases a message will indicate whether the operation has succeeded or failed. If unsuccessful you may need to contact an administrator. If you have permission, you can use the "delete" button to cancel any non-completed operation. Be aware that when adding a video, the time it takes before you actually see the video depends on a variety of factors including the duration of the video, available network bandwidth, etc.

24 VBrick Systems, Inc.

Note You cannot record live Flash streams for example from a Wowza Media Server. The operation will fail with a message displayed on the **Recordings** tab.



Recordings	2_Flapjacks_11_04_25_14_57_3 5.mpg Status: Record completed. Percent Complete: 100	Shows the stream title and record status of your recent recordings.
Downloads		
Conversions	Title: CD_WM_130_s1_Dual_13 Mode: TFA4ISCODE Status: Failed to start transcode Percent Complete: 0	Shows the status and percent complete of any transcodings in progress.
FTPs	Title: 2_Flapjacks_11_04_25_14 _57_35.mpg Server: VOD-W Status: Ftp is done Percent Complete: 100	Shows the stream title and FTP status of recent FTPs to a VOD server. This includes streams that were "added" or "recorded."
Ingestions	Title: 2_Flapjacks_11_04_25_14 _57_35.mpg Server: VOD-W Status: Ingestion completed Percent Complete: 100	Shows the stream name and ingestion status of recent ingestions to a VOD server. Streams are "ingested" when they are added to the VEMS internal database.

Chapter 4

All Videos

Topics in this section

All Videos	7
Playing Video	3
Content Metadata	
Sharing Video4	
Recording Video4	
Controlling Live Streams	

All Videos

This page provides access to all available live and stored videos, including Webcasts. It lets you find and play any video you have permission to access. In general, the first thing you will typically do, before you start searching or exploring categories, is to select **Stored Video** or **Live Video**. This will determine what is displayed on the page and will limit the results of any search you may perform. If your site includes one or more VOD (Video-on-Demand) servers or Distributed Media Engine (DME) servers, the **Stored Video** page displays a list of video files stored on the server. The **Live Video** page lets you view live video(s) that are currently being broadcast as well as any webcasts currently available on the network. The default view is **Stored Video**. If you navigate away from the page, the **Stored Video** tab will be displayed when you return.

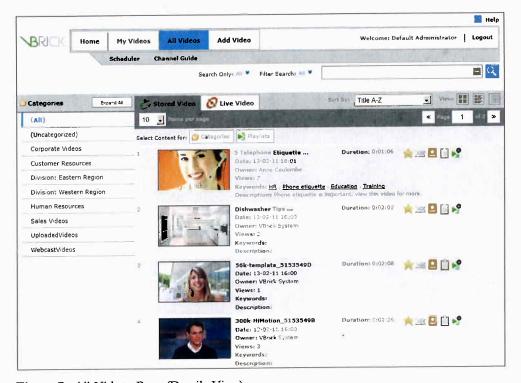
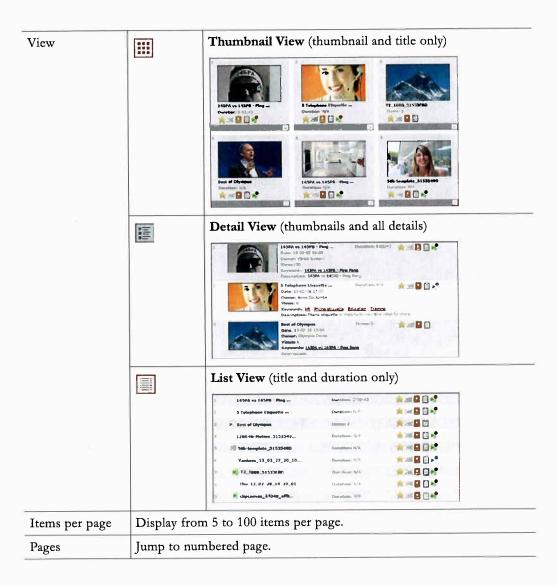


Figure 7. All Videos Page (Details View)

Note The list of available streams is typically determined by the VBrick appliances or other encoders in your network. Note that in all cases you will only see streams for which you have been given permission to access.

Search	Search options are explained in detail on the Home page.	
Categories	Categories are created by a system administrator. They are similar to folders in that they can be used to group selected content together. The currently selected category is marked with a bold vertical bar.	
	• (All) – content associated with any category will be shown in this folder.	
	 (Uncategorized) – content not associated with a category will be shown in this folder. Note: If <u>Advanced Content Distribution</u> is enabled, you will be required to select a category for your content before uploading. 	
Expand All Collapse All	Show or hide subcategories (i.e. subfolders). A blue triangle indicates that subcategories are present. Click on the icon to expand or collapse a single category.	
& Stored Video	Find and play stored videos. Stored videos have a duration and recording is disabled.	
& Live Video	Find and play live videos. Live videos have no duration and recording is enabled (if you have permission).	
Sort by	This option determines the sort order. This setting is "sticky" and will persist until changed.	
	• Title A–Z – sort alphabetically from A to Z.	
	• Title Z–A – sort alphabetically from Z to A.	
	Date Newest–Oldest – Sort by date with newest first.	
	Date Oldest–Newest – Sort by date with oldest first.	



Click the icon to display Select Content For Categories category management controls you can use to add selected content to or remove selected content from the categories you select. Choose individual streams by checking the boxes or use Select All or Clear All. Then click Add/Remove to display the Category Management page. This page Selected Categories: 0 Selected Contest: 1 shows only those categories for which you have "add" or "remove" permissions. Use Ctrl-Click or Shft-Click to select multiple categories. Click x to hide the controls. Click the icon to display Playlists playlist management controls you can use to create a new playlist or add to an existing playlist. Choose individual Drag and drop items to change o streams by checking the boxes or use Select All or Clear All. Then click Create New or select an existing playlist from the dropdown. If you click Play All or Submit Cencel Nothing, the playlist will not be viewable if any of its content items are not available. Click x to hide the controls. Displays default icon if no thumbnail is configured on Image BRICK player page. Click title or thumbnail to play. Thumbnails are auto-generated, if possible, for all videos. Displays custom image if a thumbnail is configured on player page. Click title or thumbnail to play. Displays default icon or thumbnail with red banner to indicate it is a clip.

Title	the title on the thumbnail to	The name or title assigned when the stream was added. You can change the title on the player page if you have permission. Click title or thumbnail to play. The icons on the right provide additional functionality.		
	Date	Date the stream was added.		
	Owner	User who added the stream.		
	Views	Number of times the stream has been viewed.		
	Keywords	Any custom keywords assigned on the player page.		
	Description	Assigned when the stream is added.		
	Duration	Total length of stream in hh:mm:ss. Content without a known duration is shown as N/A. The system may be unable to initially determine the duration for certain types of stored content. If this happens, the system will determine the approximate duration the first time the content is played.		

Community Tools		Add to favorites. The stream will be added to the Favorites tab in My Videos. You can add as many favorites as you like.			
	≥ -4	Recommend video. With the correct permissions, you can select the users or groups for which this content will be recommended. When you click Submit the stream will be added to the Recommended tab on the Home page for the selected users or groups. You can recommend as many videos as you like.			
	8	Make video featured. If you have permission the stream will replace the Featured Content on the Home page. If multiple videos are featured you can page through them using the arrows to the right and left of the player window (see Figure 4 on page 9).			
		Make video required. With the correct permissions, you can select the users or groups for which this content will be required. When you click Submit the stream will be added to the Required tab on the Home page for the selected users or groups and will remain there until viewed. Note that the content will not be required for new users subsequently added to a group.			
	•	Add to existing playlist. See My Playlists on page 20 for details. MM:-WM-1E37 Submed Convoid			
	P	Update an existing clip. See My Clips on page 21 for details.			
	■, ■,	Live Video. Click on the icon to add a live stream to the Channel Guide. A plus sign indicates the stream is not defined as a Custom Channel. A number indicates the stream is defined as a Custom Channel. See Adding Custom Channels on page 97 for more information.			
Webcast Tools		Used by presenter to deliver a webcast.			
	•	Used by presenter to edit webcast on Scheduler page.			
	•	Delete this webcast.			

Change Theme

The Portal Server is easy to customize and different color schemes may be available from VBrick or other sources. Each end user can select their own scheme from those available:

- Dark change to a dark theme.
- Light change to a light theme.
- · Grey change to a light grey theme.

Playing Video

Click on any live or stored video to launch the stream in the player window. Once the stream is playing you can use any of the player controls or community tools explained below. These include stop, pause, full screen, or record (for live streams only) as well as "add to favorites," share, and other community options. Note that the controls will vary slightly depending on whether you are playing a live video or a stored video. For example the "Add New Clip" icon is only shown on the Stored Video page because you can only create "clips" from stored video. Also be aware that some controls are associated with Roles. You may not have permission to use (or even see) a control depending on the role you have been assigned.



Figure 8. Preview Window

Title	displayed and you can change the name.	
Ø		

Views	Number of times the stream has been viewed by all users.			
	Indicates you	are playing a clip.		
Rating	***	You can rate the video one time only by clicking on a sta (1–5). The more stars the higher the rating. The rating shown is the calculated average of all users who rated thi video. Note: This feature can be disabled by an administrator and may not be shown.		
Community Tools	<u> </u>	Switch to approval mode. Shown when Content Approval is enabled. See <u>Content Approval</u> on page 14.		
	<u></u>	Flag as inappropriate. Shown when Content Approval is enabled. See <u>Flagging Inappropriate Content</u> on page 17.		
	P	Create a video clip. See My Clips on page 21 for details.		
	0	Click on this icon to display the player controls for an external "control device" such as a DVD player.		
	*	Add to favorites. The stream will be added to the Favorites tab in My Videos. You can add as many favorites as you like.		
	>	Recommend video. The stream will be added to the Recommended tab on the Home page.		
	•	Make video featured. If you have permission the stream will replace the Featured Content on the Home page. If multiple videos are featured you can page through them using the arrows to the right and left of the player window (see Figure 4 on page 9).		
		Make video required. If you have permission you can select the users or groups for which this content will be required. The stream(s) will be added to the Required tab on the Home page and will remain there until viewed. Note that the content will not be required for new users subsequently added to a group.		
		Embed live or stored video. See <u>Sharing Video</u> on page 44.		
	(())	Share live or stored video. See Sharing Video on page 44.		
	•	Stored video (from DME servers) only. Right-click and select "Save target as" to download the entire content file to your local machine. Be aware that large files may consume a substantial amount of disk space.		
Player Controls	(a)	Stop.		
	0	Pause.		
	•	Play.		

Record Controls		Recording inactive.		
	4	Click to initiate pushbutton recording.		
		Click to stop recording.		
Playback Controls	/•)[
	Click on the small arrow at bottom to show or hide player controls.			
	•)	Mute Adjust volume.		
		Stored video only. Use the seek bar to advance (or go back) to any point in the video.		
	(5)	Show Hide closed captioning—if available. See <u>Closed Captions</u> on page 36 for details. Note that you can always turn closed captions on or off when the player window is minimized.		
	6	Capture thumbnail. Click on the icon, wait a few seconds, and a message will indicate the thumbnail was generated successfully. Note that thumbnail generation is not supported for all streams types. See <u>Thumbnails</u> on page 38 for details.		
	8	Click to pop out one or more player windows (Figure 9). The number of pop out streams you can play depends on the resources of your computer.		
		Go to full screen. Esc to exit.		
		Time elapsed / Total time.		
Description	B	Enter a Description of the video.		
Related Content	Derived from category tags in content metadata. Shows thumbnails for other videos in the same category(s).			



Figure 9. Multiple Pop Out Windows

Closed Captions

The Portal Server supports closed captions for hearing-impaired viewers. Captions can be turned on or off for using the playback controls in the preview window (Figure 8). If a video stream (either live or stored) is encoded with captions, they can be set to on or off; if a video stream is not encoded with captions, captions will not be displayed regardless of the setting. When closed captions are "on" and the icon is green, captions are displayed for all caption-enabled streams subsequently launched from the Portal Server, until turned off. A video stream must be encoded with captions in advance. VBrick can add a date/time stamp to a live stream from a security camera, for example, but it provides no other functionality to encode live or stored video with closed captions. All captions are displayed immediately below the player window.

Note Closed captions are supported on all live and stored Windows Media (WM), H.264, and .mp4 content (and players) except Flash and QuickTime.

Content Metadata

Content metadata is information associated with a video. It can be used to include content in categories, or to add reference material or thumbnails. It can also be used to add keywords that can be used to find specific content with a search. For example if you add the keyword "flash" to a video, a Keyword search on the **All Videos** page with return all videos that have "flash" as an assigned keyword.

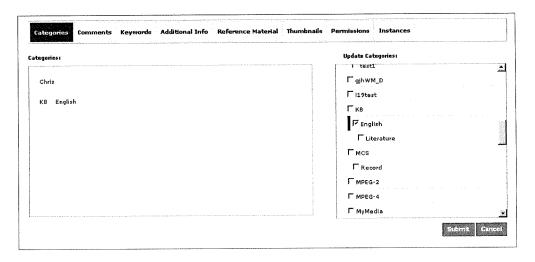
Note Depending on the particular metadata you are creating, you must always click Submit, Finish, or Save—on each tab—to save your changes to the database. If you navigate to a different tab without clicking Save, your changes will not be saved.

Categories Comments K	Ceywords Additional Info Reference Material Channel Guide Thumbnails Permissions Instances		
Categories	Categories (see below) are created by a system administrator (or derived from the folders on a VOD server) and shown on the left side of the All Videos page.		
Comments	Click Add Comment to add meaningful comments that will be seen by all viewers. Comments are configurable in that you can disable comments for a specific video or for all videos through the Permissions tab.		
Keywords	Click Edit Keywords to add searchable key words (for example "baseball" or "south america") that are associated with this stream. You can enter entire words or just a few characters. Any users can view keywords; only authorized users can edit keywords.		
Additional Info	Add more information or select from a drop-down. You may also synchronize video to Blackboard from here if you have this integration. These "custom fields" are added by an administrator.		
Reference Material	Click Add New Attachment to add a Link URL (e.g. web pages) or a Document (e.g. PowerPoint presentations, Word documents, etc.). Note: Flash (.swf) files are not supported as a Document type but you can enter a valid web page URL to a .swf file and it will display in the player window in an embedded browser.		
Channel Guide	Use this tab to add a new channel to the <u>Channel Guide</u> or to edit an existing channel.		
Thumbnails	Click Add Thumbnail to upload a custom image to replace the default image shown here. If there are multiple images, select the one to use as a thumbnail. Fo best results, resize the image to 542x305 px. You must have permission to add thumbnails. See Thumbnails below for more about thumbnails.		
Permissions	Permissions (see below) are typically derived from a category or defined by an administrator and are explained below in more detail.		
Instances	Instances (see below) are used to add additional instances of a stream with different characteristics. For example you might want to add an instance with a different bit rate or you might want to change the encoding type from Windows Media to Flash. Instances are explained in detail below.		

Categories

Categories are similar to folders in that they can be used to group selected content together. One video can be listed in multiple categories. Click on the **Categories** tab to see the categories in which a stream is included. Click on the **Edit Category** button to add or remove content from predefined categories. *Note that empty categories are not displayed.* Any users can view categories; only authorized users can edit categories.

Note If <u>Advanced Content Distribution</u> has been enabled, a category *must* be assigned to content before it may be uploaded or recorded.



Thumbnails

Thumbnails are used to replace the default icon (for live streams, stored streams, playlists, and clips) with a thumb-sized image. Thumbnails can be generated automatically by clicking the icon while a stream is playing or manually by uploading an image using the Content Metadata option. The easiest way to create a thumbnail is to click the thumbnail icon while a stream is playing and capture a frame from the stream. Be aware that the image is actually captured several seconds after you click the icon so it may not be the exact frame you expected. An alternate method is to manually create a thumbnail from any existing image using the **Thumbnails** tab in the content metadata. As shown in the following table, thumbnail generation is not supported for all streams types.

Table 6. Thumbnail Auto Generation

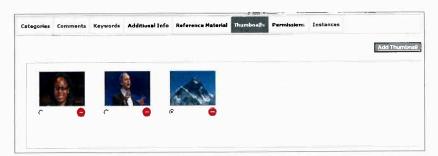
Auto Generation Supported		Auto Generation Not Supported	
Live	 H264 (RTP) MP4 Windows Media ¹ MP2 	Live	 Live Flash Live H264TS Live Multicast ³ Live RTSPU Windows Media

Auto Generation Supported		Auto Ge	Auto Generation Not Supported	
Stored	 H264TS H264 MP4 Windows Media/MP2 ² 	Stored	Stored Flash Stored content from progressive download servers	

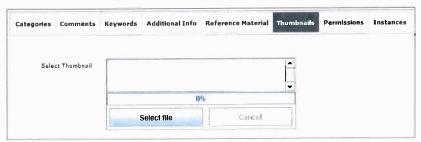
- Unicast or multicast without .nsc file.
- 2 Not sourced from a progressive download server.
- 3 Windows Media with .nsc file.
- ▼ To change the default thumbnail image:
- 1. Click on any live or stored stream that currently uses the default thumbnail image shown here.



- 2. When the streams plays, click on the thumbnail icon in the player controls. Wait a few seconds, and if thumbnails are supported for the selected stream type, a message will indicate that the thumbnail was generated successfully. This thumbnail will replace the default image.
- 3. To select from multiple thumbnails (or to upload your own thumbnail image), click on the **Thumbnails** tab in the content metadata.



4. Select a thumbnail from the available choices or click Add Thumbnail to upload your own image. The selected radio button indicates which thumbnail is the default (i.e. the one associated with the content in the user interface). When uploading or adding a new thumbnail, the new thumbnail will replace the currently selected "default."



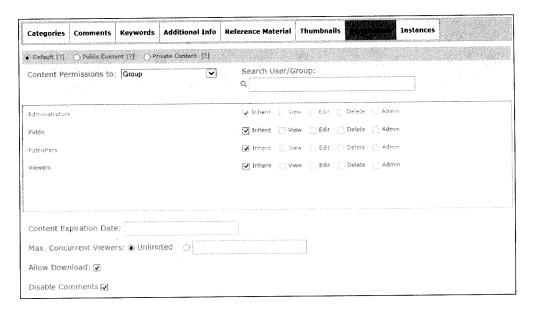
5. Click **Select File** and navigate to the image you want as a thumbnail. For best results, resize to 542x305 px before uploading. If there are multiple images, select one to use as a thumbnail.

Thumbnail Support

Thumbnails are used to replace the default icon (for live streams, stored streams, playlists, and clips) with a thumb-sized image. Thumbnails can be generated automatically by clicking the icon while a stream is playing.

Permissions

Permissions are typically derived from a category or defined by an administrator. They specify which predefined users and groups can view or edit the content. You can also specify if users may comment on a video. In most cases you will only use this window to override the existing category permissions and apply file level permissions for specific content. Start by selecting one of the radio buttons (User or Group) at the top which specify whether the permissions will apply to users or to groups. The various permission check boxes below only apply if you select the Default radio button. As explained below, this pane is also used to set the Content Expiration Date, Max. Concurrent Viewers, Allow Download and Comments for VOD content.



Default	Inherit the category permissions.
Public Content	Make content available for all users.
Private Content	Only users with explicit permissions can view the content.
Content Expiration Date	Controls the length of time that specific content can be viewed (see Content Expiration below).

Max. Concurrent Viewers	Defines the maximum number of users who can view this content simultaneously. This field lets you adjust the number of viewers on an individual content basis. If not specified, it defaults to the value configured in Global Settings. Applies to live or stored content; does not apply to scheduled broadcasts or presentations. This feature is used to enforce copyright restrictions: if the number of concurrent viewers exceeds the configured value, the content will not play and an error message will be displayed. It does not apply to specific playlists or clips but is enforced for the individual items making up the playlist or clip.
Allow Download	If this option is enabled by an administrator, and you have the proper permissions (see note below), you can check this box to enable VOD content download (from DME servers only). When checked, the icon shown above will display in the "community tools" panel above the player window. (You can then right-click and select "Save target as" to download the entire content file to your local machine.) You can also uncheck this button to override and disable download for content that was automatically enabled. Note: In order to see and use this option you must be logged in as a System, User, Content, or Channel Guide administrator or as a Scheduler. See Roles on page 5 for more about this.
Disable Comments	Selecting this options will disable comments (and the Comment tab) for this specific video only. An admin may also disable all comments for all videos if desired. See: Admin User Guide > System Settings > Global Settings.

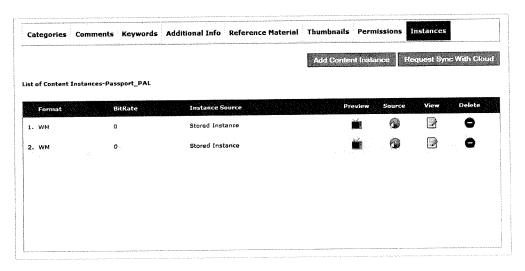
Content Expiration

Content expiration controls the length of time that specific content can be viewed and is used to protect the rights of content owners. Content expiration is typically used for time-sensitive, copyrighted, or otherwise protected content that cannot be legally displayed after a specified date or a period of time. Users with permissions to add or modify content can also assign a Content Expiration Date on the Permissions tab of the Content Metadata pages. The Portal Server enforces content expiration by preventing the streaming or scheduling of content that is expired or will expire before the schedule date (the content actually expires at 0:00:00 AM on the specified date).

When content expires a warning icon is displayed on the viewer page and you can mouseover the icon to see the expiration date and the delete date. (There is typically a 14-day delay period between the time content expires and when it is deleted.) In a common scenario an administrator will be assigned to monitor and/or renew content that is about to expire. To make this easier, the Portal Server will automatically generate an e-mail that notifies this **Expiration Warning Recipient** when content is about to expire. The System Settings > Global Settings > Content Expiration Configuration topic in the *Portal Server Admin Guide* explains how to configure these Content Expiration settings.

Instances

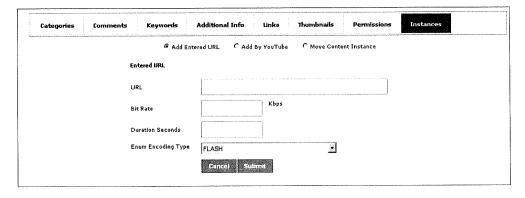
As noted above you can have multiple instances of a stream with different characteristics. For example you might want to have the same files on different servers for load balancing and remote access, or you might want to have multiple instances of a file with multiple bit rates that are optimized for different players. This page is used to manage those multiple instances. Note that the only way to completely delete content is by using this page to delete all instances of the content.



Format	Encoding format: Select Flash, Flash Multicast, H264, H264TS, MP4WM, or Cloud.								
Bit Rate	Bit rate in Kbps.								
Instance Source	Live or Stored.								
Transcode	Click to create another instance of the stream that has been transcoded to WM or H.264. Note that before Transcoding existing content, you <i>must</i> have a category assigned if <u>Advanced Content</u> . <u>Distribution</u> is enabled.								
Preview	Restarts the stream in preview window.								
Source	Shows the stream name and FTP folder where it's stored.								
View	Shows stream info including Title, Bit Rate, and Duration.								
Delete	Deletes the content after you confirm. To completely remove a video, delete all the instances. Be aware that this actually deletes the file and is not recoverable.								

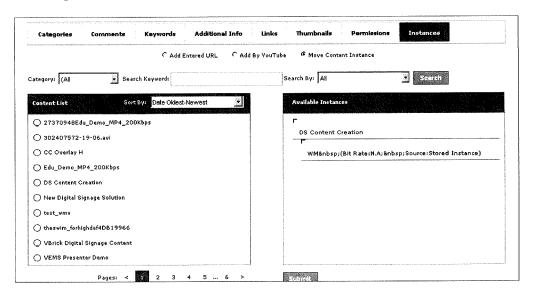
Add Content Instance

Use this feature to add another instance of the same content, typically in a different encoding format. For a description of adding a content instance via Add Entered URL, see Entered URL on page 50. For a description of Add By YouTube, see Search for Video on YouTube.



Move Content Instance

Use this feature to manage existing instances of content available for use. This feature is designed for advanced users. It takes an instance from one piece of content and moves it to a different piece of content.



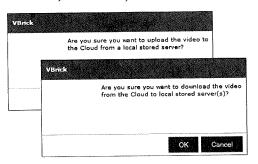
Request Sync with Cloud

Content stored on a "Cloud" server (configured in VEMS) is basically available to anyone with an Internet connection and a <u>VBOSS</u> (VBrick Online Streaming Service) account. VEMS auto-discovers content stored in the Cloud. The resulting content instances records are pointers to assets stored and managed on the Cloud server by VBOSS. There are two ways to manage Cloud content:

- Content can be downloaded <u>from the Cloud</u> to a local VOD server. It is then stored and managed locally in VEMS.
- Content can be uploaded to the Cloud from a local VOD server. It is then stored and managed in the Cloud by VBOSS.

This means that, if the content has been downloaded from the Cloud, users inside the firewall can access the content locally and can remain inside the firewall. Similarly, if the content has been uploaded to the Cloud, users outside the firewall can access Cloud content from the Internet without ever accessing the Portal Server. The content is "synchronized" when there

is a local copy in VEMS and a remote copy in the Cloud. When you click **Request Sync with Cloud**, the system will initiate an upload of the *highest bit rate instance* to the Cloud or a download from the Cloud, whichever is necessary to synchronize the content in both places. A download from the Cloud actually includes three instances (high definition, standard definition, and mobile).



The Request Sync with Cloud button is only displayed if (1) the user currently logged in has "edit" and "publishing" privileges for the content and (2) there is an online Cloud server that is configured and available in VEMS. Be aware that downloading content from the Cloud into VEMS is just like using "Add Video" and the time it takes before it is available in VEMS depends on a variety of factors (it may take 30 minutes or more for a large file; or it may be hours or days depending on the "ingestion schedule" configured for the VOD server by an administrator). Similarly, when content is uploaded to the Cloud, the upload depends on bandwidth availability, network congestion, and other factors. To see whether a synchronization has been successfully initiated, go to My Videos > My Recordings and check the download or ingestion status. After a successful synchronization, a new instance for assets in the Cloud will be displayed with an encoding Format of "Cloud" if you are syncing to the Cloud or a non-Cloud format if syncing from the Cloud. In all cases you may want to check with an administrator if you think the synchronization has failed.

Note If you will be uploading (H.264 or MPEG-4) content to the Cloud from a local VOD-W server, there are additional configuration steps that must be performed on the VEMS server else the synchronization request will fail. For more information, see "Configuring a Cloud Server to Synchronize VOD-W Content" in the Admin Guide.

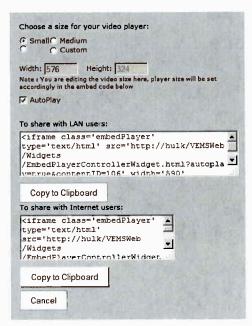
Sharing Video

There are two ways to share live or stored video with other LAN users using the icons on the player page. You can (1) embed the HTML code in a web page you are building; or (2) you can send a link (typically via e-mail) to other users. This embedded code will play back to PCs, Macs, and iPads (HLS) using the correct player. However, in both cases, if authentication is enabled, users will have to login with valid credentials before the stream will play.

Embed Video

- ▼ To embed video in an HTML page:
- 1. Launch a live or stored stream and click on the Embed Video icon.
- 2. When the following popup is displayed, choose a size for your video player and the embed code will be adjusted accordingly. (Note: This option is only available for certain content types.)

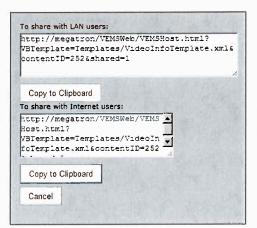
- 3. If you want the stream to automatically play when your web page opens, check Autoplay.
- 4. Click Copy to Clipboard and then paste the code into a web page.
- 5. When the web page is launched, users will see an embedded video player in the page, and if Autoplay was checked, the stream will play automatically.





Share Video

- ▼ To share video with other LAN users:
- 1. Launch a live or stored stream and click on the Share Video icon.
- 2. When the following popup is displayed, choose a size a size for your video player and copy the code for internal LAN users or for external Internet users. (Note that the Internet option may not be shown; it must be configured by an administrator on the Global Settings > Hostnames page.)
- 3. Click **Copy to Clipboard** and then paste the code into an e-mail message on your local LAN.
- 4. An e-mail user who clicks on the link will launch the stream in a VEMS player.





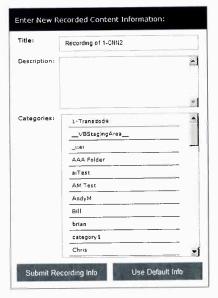
Recording Video

Any live video stream can be recorded from the live video player—if you have permission to do so. The live video player is similar to the stored video player but also has a red "record" button (see below).

- ▼ To record a live stream:
- 1. Select and play a live stream.
- 2. Click on the green "record" button and it will turn red.



3. To stop the recording, click on the red record button again and **OK** to confirm. This will display a page for information (i.e. metadata) that describes the content.



4. Click **Use Default Info** or **Submit Recording Info** as appropriate. It is always a good idea to make the video easier to find by submitting detailed recording information.

Submit Recording Info	Enter a Title, a Description, and select one or more Categories in which the video will be included by clicking (or unclicking) the title.
Use Default Info	Title: program_name_mm_dd_yy_hh_mm_ss Description: none
	Category: Uncategorized

5. After the video has been FTPed and ingested (check the My Videos > My Recordings page) the video will be available for viewing. Be aware that when adding a video, the time it takes before you actually see the video depends on a variety of factors including the duration of the video, available network bandwidth, etc.

Controlling Live Streams

If configured by an administrator, DVD players, VCRs, and other devices can be controlled remotely using a "virtual" graphical control panel (see below) displayed on the page. For example, you can start, stop, rewind, or fast forward a DVD player using the control panel associated with that device on the Live Media page. Once a device has been defined, it is available to all users (with access to that device) unless it is reserved for a scheduled event. If reserved for a scheduled event, and in order to avoid conflicts, only the user who created the schedule can access the device. (Mouseover the hyperlink for a schedule event to see the owner.) Once defined, you can control a device using a graphical control panel. On the Live Media page, any stream originating from a control device is distinguished by the special icon shown above. Click on the icon to launch the stream and the control panel for the device. The control panel you see will vary depending on the actual device. Click on the arrow icons on the right side of the panel to show or hide the panel.

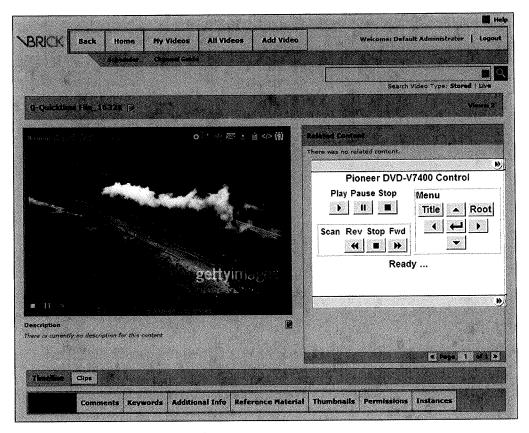


Figure 10. "Virtual" Control Panel

Chapter 5

Add Video

Topics in this section

Stored Video	- 1	•		٠.		•	•	 ,				٠			٠	•	, ,	٠	٠		,					 		٠		 . 5	0
Live Video																															

If given publishing permissions, you will have the ability to add live or stored video to the server. You can add stored video to any of the VOD or DME servers you have permission to access. The folders to which you can add video are configured by your system administrator. If you have WM or H.264 video content on your local network or accessible via a web server, you can publish this content to the VOD server(s) using the **Add Video** page. If transcoding is enabled, and an administrator has provided templates, the uploaded content may be automatically transcoded without user intervention. If you have content management rights, you may be able to choose between different transcoding templates when adding video.

Content acquired by recording with VBrick StreamPlayer Plus or a VBrick VBStar will always ingest and play at a consistent high quality; content acquired from third-party vendors or elsewhere may not. You can add any of the stream types shown below in Table 1. When adding video, be aware that the **Save** button applies to content metadata only. You must click the **Finalize** button to actually upload video into Mystro. Also note that the **Add Video** functionality is not restricted by zone. Any desktop user can add video. However LAN users can view video on LAN or Internet VOD servers; Internet users can view video only on Internet VOD servers.

Table 1. Supported Live Stream Types

Stream Type	Description
Windows Media	Any stream type including .asf, .wmv, .wma, .mp3, and .wsx.
H.264	Most stream types including all ISMA-compliant streams.
Flash	Most stream types including .flv, H264.mp4, .mov, .m4a, m.4v, and .swf. Limited support for .mp4 files on a progressive download file server.
HLS	HTTP Live Streaming to Apple iOS devices, e.g. iPad, iPhone, etc.
HDS	HTTP Dynamic Streaming (Adobe)

Note If you have permissions to Add Video or Thumbnails, some browsers and operating systems will not display the upload control until Java is installed but may not prompt you to actually install Java. With other browsers and operating systems, if you follow the prompts to download Java, the installed upload control will work properly but may display compatibility warnings. To work around this issue, it is recommended that the latest version of the Java Runtime Environment (JRE) be installed on all VEMS servers. Make sure you choose the appropriate version for your browser and operating system.

Stored Video

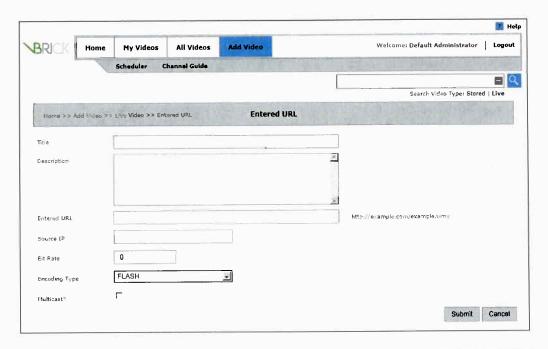
You can add stored video in the ways explained below. Once you have identified the stored stream or file the Content Metadata tabs will be displayed. At a minimum you will need to enter a Title to continue. For best results you will also want to enter a Category, Keywords, and other metadata. When done click Save (to save the metadata). Then click Upload Video to actually upload the video to the Portal Server. The Portal Server can play Flash URLs that point directly to Flash content anywhere (on the Internet or elsewhere) as long as the URL points to the Flash video source. Mystro will not play URLs that point to web pages (for example Hulu. CNN, etc.) that contain their own proprietary players (and other content as well). You can use any of the following methods to add video content.

Entered URL	Enter the fully qualified URL of a stored asset.
Upload Video	Navigate to the file location of a stored asset.
Upload Multi-bitrate Files	Upload files encoded with multiple bit rates.
YouTube Video Options	Upload to YouTube or search on YouTube.

- Notes If you select a valid video and enter the required metadata, you will get a message indicating: "Content added successfully!" Depending on system resources and other factors, it may take several minutes before the video is actually available for viewing.
 - · A stream is "transcoded" when it is converted from one streaming format to another, for example from MPEG-2 to WM or H.264. Transcoding requires specific permissions. If you have transcoding permissions, transcoding options may be shown when you are adding video and the transcoded video will be added with its own thumbnail.

Entered URL

Use this page to point to video located on a streaming web server. Once you enter a valid URL you will be prompted to enter Content Metadata.

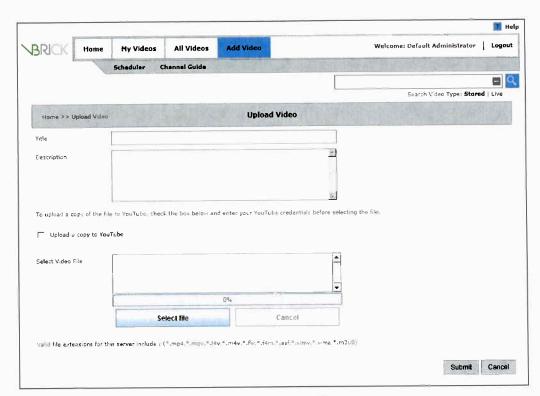


Entered URL	The fully qualified path to an asset on a web server.
Bit Rate	Optional. The bit rate in kbps if available.
Duration	Optional. The duration in seconds.
Encoding Type	Encoding type: select from dropdown list.
Multicast	Check this box if you are using multicast and it is supported by the encoding type.

Upload Video

Use this method to upload stored video located in a file system. If you have a valid Google account, you can also upload a copy to YouTube. At a minimum, you will need to enter a Title to continue. For best results you will also want to enter a Category, Keywords, and other metadata. You can also upload a custom thumbnail. To upload a video simply navigate to the file and click Upload Video.

Note When uploading video to YouTube, you must use a valid Google account.



If content approval workflow is enabled, the content will not be available to viewers until it has been approved and the following message will be displayed. You can add Categories, Comments and other metadata and an approver will be notified that content requiring approval has been added. See <u>Content Approval</u> on page 14 for more about this.



Note If <u>Advanced Content Distribution</u> has been enabled, a category *must* be assigned to content before it may be uploaded or recorded.

Add a Thumbnail

Click on Thumbnails > Edit Thumbnail to add your own custom icon for the video. For best results use any standard image format (.png, .gif, .jpg, etc.) and resize to 542x305.



YouTube Video Options

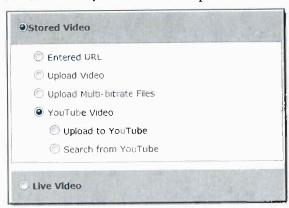
VEMS provides additional **YouTube Video** options that let you upload a video <u>to</u> YouTube or download a video <u>from</u> YouTube when you upload stored video. You may upload a video directly to YouTube or an additional copy of a stored video you are uploading elsewhere.

You must have a valid Google account to use these options. This option may be disabled by an administrator. If so, you will not see the YouTube options.

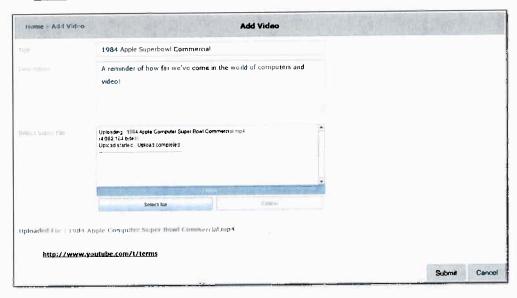
Upload a Video to YouTube

This feature uploads a video to YouTube if you have a valid Google account. It can be your account or any account for which you have valid credentials. As noted, this option can be disabled by an administrator. You will not see this option if your administrator has disabled it.

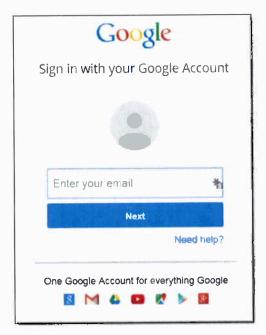
- ▼ To upload a video to YouTube:
- Navigate to Add Video > Stored Video > YouTube Video.
- 2. Select the Upload to YouTube option.



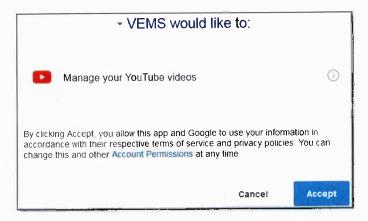
3. Complete all fields as you normally would when uploading a stored video. See: <u>Upload Video</u> and click the **Submit** button.



4. You will be prompted for your Google account credentials if you are not already logged in to a Google account.



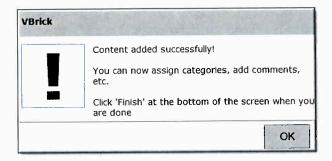
5. Once logged in, Google will ask for permission to manage VEMS video YouTube content. This step will only occur once for each Google account you use to upload and/or search VEMS video.

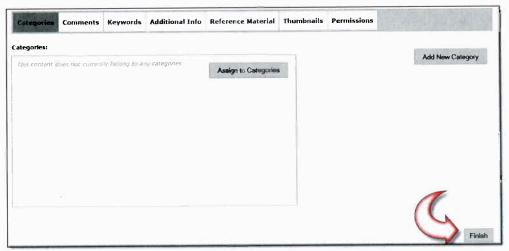


6. VEMS will provide status messages on your upload.



7. Please note that once your upload begins after clicking the **Submit** button, you will be redirected to the **Add Videos** > **Categories** tab where you may add additional metadata to your video such as categories, comments and so forth. If you add a category and additional metadata to the video, click the **Finish** button to complete your submission.

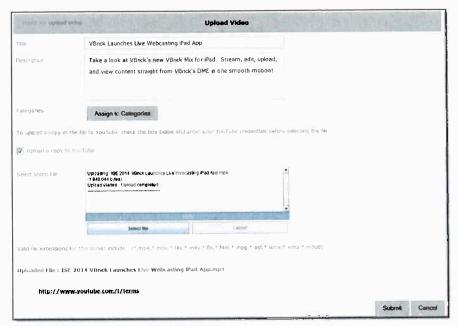




Upload a Video Copy to YouTube

This feature provides an additional copy of your stored video upload to any valid Google account. It can be your account or any account for which you have valid credentials. As noted, this option can be disabled by an administrator. You will not see this option if your administrator has disabled it.

- ▼ To provide a copy of your stored video upload to YouTube:
- 1. Navigate to Add Video > Stored Video > Upload Video.
- 2. Complete all fields as you normally would when uploading a stored video. See: <u>Upload Video</u>.
- 3. Make sure the Upload a copy to YouTube checkbox is selected.



- 4. Click the **Submit** button. The video will be uploaded as it normally would and a copy will be uploaded to YouTube.
- 5. You will be prompted for your Google account credentials if you have not already given them as described in <u>Upload a Video to YouTube</u>.

Search for Video on YouTube

This feature lets you search YouTube for content and add that content to VEMS. You do not need a YouTube account to use this feature. As noted, this option can be disabled by an administrator. You will not see this option if your administrator has disabled it.

- ▼ To search for video on YouTube to add to VEMS:
- 1. Navigate to Add Video > Stored Video > YouTube Video.
- 2. Select the Search from YouTube option.



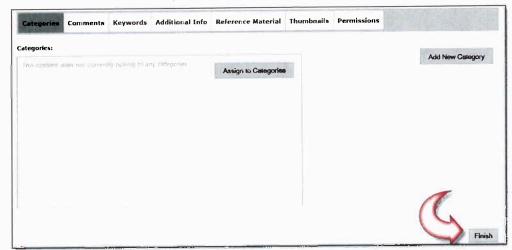
3. Use the drop-down menus to narrow your search criteria. For example, you may specify to search by **Keywords** and to sort by **ViewCount**.



4. Select the Add Content button to add the video from YouTube to VEMS. You will be able to modify the Title, Description, and Thumbnail selection before your final submission.



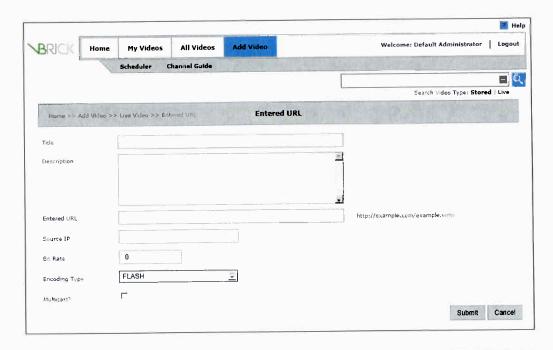
5. Click the **Submit** button. Similar to adding content to YouTube, you will be redirected to the **Categories** tab after submitting your video to add the video to any relevant categories in VEMS if desired. Click the **Finish** button under the **Categories** tab in VEMS for your content to be finalized if you do so.



Live Video

Use this option to create links to live video present anywhere on the web.

Entered URL



Entered URL	The fully qualified path to an asset on a web server.	
Source IP	When using "zones" to direct Portal Server clients to specific servers, you may need to define a source IP address to identify a server that is outside the defined zones or uses a hostname exclusively. The Source IP is not necessary when the IP address of the URL itself can be identified as being in the zone. See the Portal Server Admin Guide for more information.	
Bit Rate	Optional. The bit rate in kbps if available.	
Encoding Type	Encoding type: select from dropdown list.	
Multicast	Check this box if you are using multicast and it is supported by the encoding type.	

Chapter 6

Using Blackboard with VEMS

Topics in this section

Overview	. 59
Tagging Content	
Error Handling.	
Blackboard Integration Use Cases	

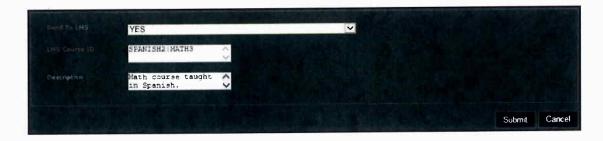
Overview

Both stored and live content in VEMS may be integrated and then viewed with Blackboard. Integration is accomplished by specifying values for both the LMS Course ID field and the Send to LMS field. These fields must first be defined and configured by your VEMS administrator. See the chapter on VEMS Blackboard Integration > VEMS Mystro Portal Server v6.3.15 Admin Guide.

Tagging Content

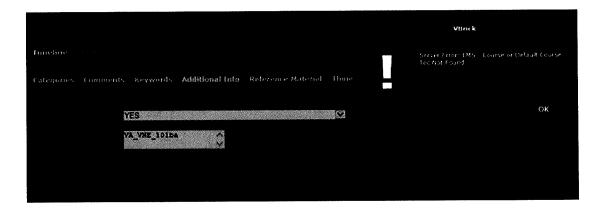
Specific values must be set in the LMS Course ID and Send to LMS fields in order for content to be viewed in Blackboard.

- Send to LMS: This field is configured as an option field and can be set to either YES or NO. YES indicates that VEMS will attempt to send the content's URL to Blackboard.
 NO indicates that it will not.
- LMS Course ID: This field indicates the unique course identifier in Blackboard to which the content you specify will be added. Multiple courses may be tagged at once by using a pipe ("|") delimiter between the courses. For example, if this field is set to "SPANISH2 | MATH3", the content will be added in Blackboard to both the SPANISH2 and MATH3 courses if the Send to LMS field is set to "YES" as well.



Error Handling

If VEMS is unable to send the content to Blackboard, an error message will appear on the screen. For example, if the specified Blackboard course that is entered in the LMS Course ID field does not exist, an error message will be displayed.



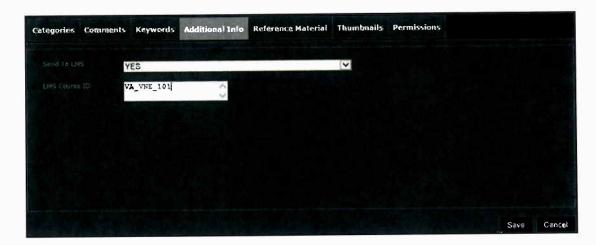
Blackboard Integration Use Cases

All content is integrated with Blackboard through the **Additional Info** tab which is part of the Content Metadata tabs.

Blackboard Integration after Adding a New Video

You can easily integrate content with Blackboard when adding a new video.

- ▼ To integrate with Blackboard after adding a video, complete the following steps:
- 1. Click the Add Video tab.
- 2. Enter a Title and Description.
- 3. Select the video file to add by clicking Select File.
- 4. Click the Submit button to add the content.
- 5. Click OK when the pop-up message displays, "Content added successfully!"
- 6. Click on the Additional Info tab > Edit Additional Info.
- 7. Send to LMS: Set to YES.
- 8. LMS Course ID: Unique course ID of the course in Blackboard to send the content to.
- 9. Click the Save button and then Finish to integrate the content.



Integrating a Stored Video with Blackboard

- ▼ To integrate stored content with Blackboard, complete the following steps:
- 1. Navigate to the desired video (Use the All Videos tab, use the Search functionality, etc.)
- 2. Click on the Additional Info tab > Edit Additional Info
- 3. Send to LMS: Set to YES.
- 4. LMS Course ID: Unique course ID of the course in Blackboard to send the content to.
- 5. Click the Save button and then Finish to integrate the content.

Integrating Live Video with Blackboard

- ▼ To integrate live content with Blackboard, complete the following steps:
- 1. Navigate to the desired video (Use the All Videos tab, use the Search functionality, etc.)
- 2. Click on the Additional Info tab > Edit Additional Info
- 3. Send to LMS: Set to YES.
- 4. LMS Course ID: Unique course ID of the course in Blackboard to send the content to.
- 5. Click the Save button and then Finish to integrate the content.

On-Demand Recordings and Blackboard Integration

When a user initiates an on-demand recording, both custom field values will automatically be populated based on the values specified in the corresponding live stream. It is not necessary to edit these fields after the recording has been completed.

- ▼ The values for the on-demand recording will be automatically populated as follows:
- LMS Course ID: Set to the Blackboard course ID of the corresponding live stream.
- Send to LMS: Set to "YES" if the live stream has a Blackboard course ID; set to NO otherwise.

Note that you can choose *not* to publish the live stream to Blackboard while publishing the on-demand recordings for the stream.

- ▼ To accomplish this, simply set the *live* stream settings as follows:
- LMS Course ID: Set to the desired course for the on-demand recordings.
- Send to LMS: Set to "NO".

Chapter 7

Scheduler

Topics in this section

Overview
Live Broadcast
Rebroadcast Content
Tune STB to Existing Stream
Live Webcast
Lync Meeting
Record
Script
Control Device

Overview

The **Scheduler** page lets you create (or view) a schedule for future events. These include scheduled broadcasts of live or stored video, webcasts, and recordings. You set all configuration parameters in advance and the scheduled event will occur without further intervention, assuming that all devices and streams are available at runtime. The initial steps required to create a scheduled program are described below followed by a detailed explanation of each schedule type (for example, live broadcast, live webcast, etc.).

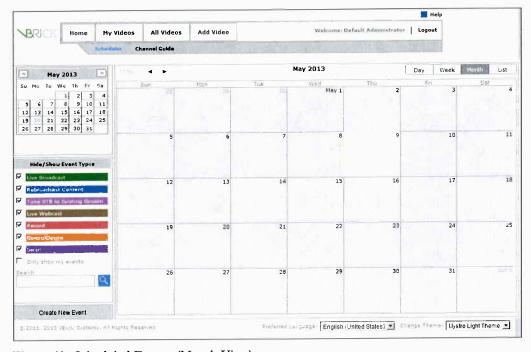


Figure 11. Scheduled Events (Month View)

In order to schedule an event, you must have the appropriate permissions enabled by a Portal Server administrator. For example, depending on how your permissions are configured, you may not see the Scheduler tab at all or you may have read-only permissions which will allow you to see the Scheduler tab but not the **Create New Event** button. To modify or delete a scheduled event, including one that's running, click on the event on the calendar page, and then edit or delete the event as necessary.

When using the Scheduler, be aware that all VBrick encoder/decoder resources must be available at the date and time of the scheduled event. When creating a schedule, the Portal Server verifies that the resources are present on the network but there is no way to determine if these resources will still be available at runtime. If there is a subsequent resource conflict, for example if a VBrick is not available (or the hard drive on a VBStar is full), the encoder/decoders will not connect for the scheduled event and there will be no video between the devices. When this happens, an error message, for example will be displayed in the Application Errors page on the admin Dashboard and in the Event Viewer on the server. Similar problems will occur if the Portal Server and VOD server clocks are not synchronized.

Schedule Privileges

As shown below, Portal Server users may have limited schedule privileges in which case their ability to create or modify schedules is restricted. For example, anyone can view a schedule on the calendar page but users with "partial" privileges, for example, will only be able to drill down and modify a schedule they "own" (i.e. one they created). Click on any scheduled event on the calendar page to view the owner.

Table 2. Schedule Privileges

User	Privileges
Super	Create/modify/delete schedules for all users.
Full	Create/modify/delete schedules for the current user.
None	No schedule privileges; no Create New Event button shown on Scheduling page.

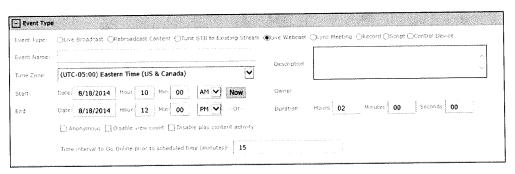
Event Type

The available content for creating a scheduled program includes live streams from a VBrick encoder or stored files on an VOD server (or a VBStar). Any scheduled programs currently in progress can be launched by clicking the icon on the **Scheduler** page or from the **All Videos** > Live Video page. (An event can also be viewed from a PC if VBrick's StreamPlayer is installed) The first steps in creating a schedule are the same for all types of schedules.

- ▼ To schedule an event:
- 1. Click **Scheduler** on the Portal Server home page to display the "calendar" page shown in Figure 11. Switch to the view (**Month**, **Week**, **Day**) you prefer.
- 2. Click on the day of the event, and select Create New Event. (In Day view, you must click on a specific hour.)



- 3. This will launch the Scheduler wizard. The first page of the wizard (**Event Type**) defines the date, time, duration, etc.) and is basically the same for all event types. The remaining pages (for example **Source** or **Record**) differ depending on the type of event you are scheduling.
- 4. Start by selecting an **Event Type**. Each event type has a different wizard as explained on the following pages but basically, you select the source and destination targets (for live and stored broadcasts), the VBricks (for a webcast), or the live program you will record. Go to the appropriate topic below depending on the **Event Type** you select.

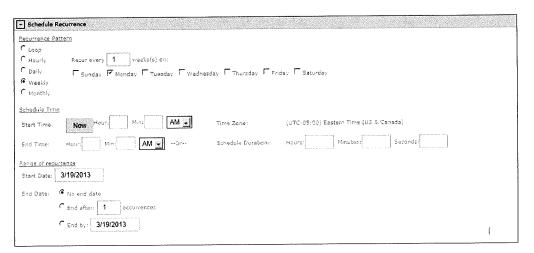


Event Type	 Live Broadcast – Broadcast a live event. Rebroadcast Content – Rebroadcast stored content. Tune STB to Existing Stream – Tune an STB to an existing stream. Live Webcast – Deliver a live webcast. Lync Meeting – Broadcast a stream to a Microsoft Lync meeting. Available with a VEMS Lync Integration only. Record – Schedule and save a recording. 	
Event Name	Alphanumeric, no special characters, must be unique. Maximum 128 characters. To avoid format errors, click in the date and time fields and use the calendar and dropdown list respectively. Depending on the view you selected above, these fields may be pre-filled.	
Description	A description of the event is shown on the event "snapshot" (Figure 12).	
Time Zone	Be sure to select a time zone. Remote viewers will see a scheduled event that has been time-adjusted relative to the zone selected here. For example, if you schedule an event for 3:00 PM Eastern Time (US), it will be displayed as 6:00 PM Pacific Time (US) for viewers in California.	
Is Recurring?	Check this box to create a <u>Schedule Recurrence</u> schedule as explained below.	
Start	Use the calendar and the dropdown menu respectively to select start date and time. Select Now to start immediately with a default duratio of one hour.	
End	Use the calendar and the dropdown menu respectively to select start date and time.	
Owner	Read-only. The owner is the user who is currently logged in.	

Duration	Use this field instead of entering an End time.			
Anonymous	Use for large webcast events. Speeds up the login process by disabling authentication for users who login via an auto-generated email link.			
Disable view count	Use for large webcast events. Improves performance by disabling the Logged In Viewers counter on the Live Webcast Presenter Page (see Figure 14 on page 83).			
Disable play content activity	Use for large webcast events. Improves performance by disabling the "Play Activity" report.			
Time interval to Go Online prior to scheduled time (minutes)	Present during Live Webcasts and Lync Meetings. Available so that presenters may specify how many minutes ahead of time they may start the meeting before attendees may join. This allows presenters to have a "Please standby - Presentation will begin shortly." message in place for attendees if desired.			

Schedule Recurrence

This feature has an intuitive interface that makes it easy to schedule recurring events. To remove a recurrence schedule simply uncheck **Is Recurring?** on the **Event Type** page.



Recurrence Pattern	Use the radio buttons and check boxes to set a Daily, Weekly, or Monthly recurrence pattern.	
Schedule Time	Set start, end, and duration. Duration cannot exceed 24 hours.	
Range of Recurrence	Describe the start and end of the range. End can be none, number of occurrences, or a specific date.	

- 5. Configure Advanced Settings for VBricks as necessary (see Advanced Settings below).
- 6. When done verify the information and click **Submit**. The named schedule will be added to the calendar page of scheduled events and color-coded according to the type of event. For example in Figure 11 a **Live Broadcast** event has a green title.

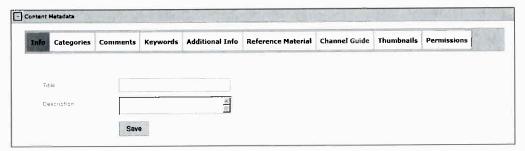
Advanced Settings

Advanced Settings are typically used to configure VBrick appliances with exceptional configuration parameters—often with help from VBrick Support Services. It is unlikely you will ever need to change these settings. In all cases you can safely ignore these settings and use the defaults provided by the Portal Server. The available settings depend on the device characteristics. For example, the following window shows the advanced settings for a Windows Media encoder. See the specific appliance documentation for more about these device settings.



Content Metadata

If you will be recording an event you will need to enter content metadata that will be used to search, categorize, and enhance the recorded content. You can also use the content metadata to add a Live Broadcast, rebroadcast, or Webcast to the Channel Guide. See <u>Content Metadata</u> on page 36 for more about these options.



Finalize or Delete Schedule

The final step in creating a schedule is to review and confirm the settings. If you are satisfied with the schedule and/or the recurrence pattern, click **Submit** and the schedule will be added to the calendar. If not you can go back and change the settings as necessary. To delete a schedule, simply open a scheduled event from the calendar, scroll to the bottom of the page, and click **Delete**. This removes the schedule and all future recurrences. To change a schedule without deleting it, open the schedule, make any changes, and then click **Submit**. In this manner you can change the devices, recurrence pattern, or other details in a schedule without deleting the schedule and starting from scratch.

Viewing the Schedule

Click on any scheduled event on the calendar to see a "snapshot" of the event configuration. The schedule details include the dates, recurrence pattern, and owner.

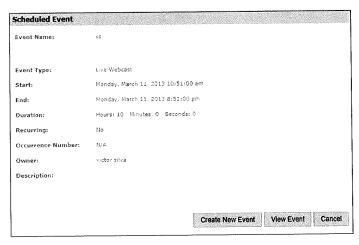
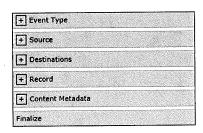
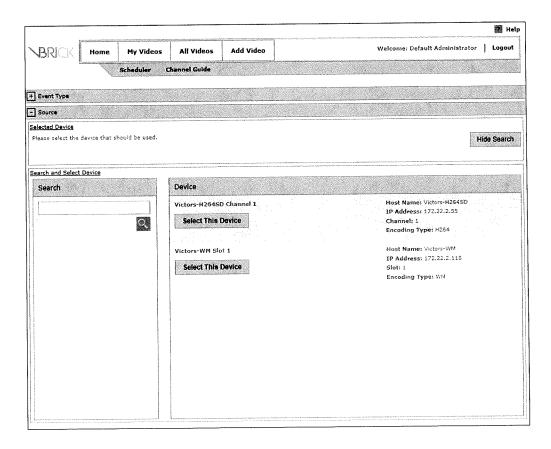


Figure 12. Event "Snapshot"

Live Broadcast

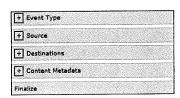
Use this feature to create a schedule for a live broadcast. This means that at the scheduled date and time a live stream will be added to the **Live Video** page and be available to authorized users for viewing. To create a **Live Broadcast** you will need to select a **Source** device, followed by **Record** details (if any), and then add **Content Metadata**.

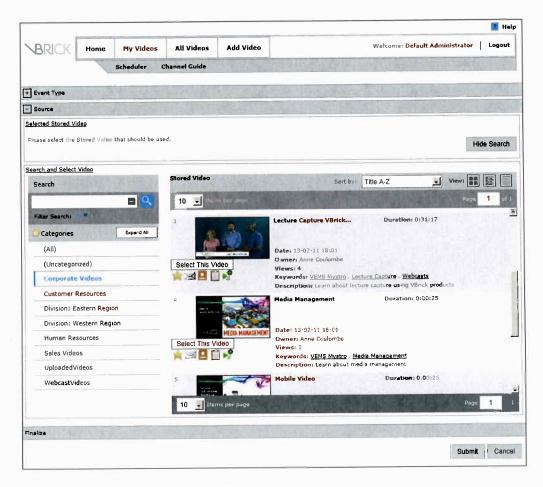




Rebroadcast Content

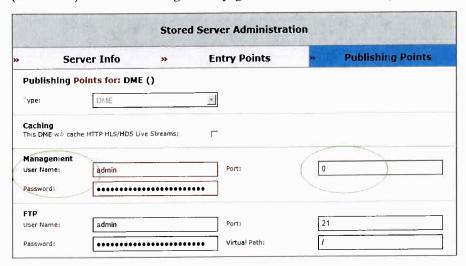
Use this feature to create a schedule for broadcasting a stored video. This means that at the scheduled date and time a stored video from a DME, a VOD server, or a VBStar will be added to the Live Video page and be available to authorized users for viewing. To Rebroadcast Content you will need to select the Source video and then add Content Metadata (if you elect to replace the existing metadata). If you set a Recurrence Pattern, the selected content will be rebroadcast in a continual loop. When selecting content, be sure to click the "search" icon to populate the panel with content. You can schedule a rebroadcast of content stored on VOD-W, VOD-WM-ADV, and DME servers only. You cannot schedule a broadcast of a video stored on a file server or other server. Also be aware that regardless of how much time you scheduled for the video on the calendar, the time blocked out will automatically adjust to the actual length of the video. Note that a rebroadcast of content may fail from legacy VOD-W servers. For best results, upgrade to VOD-W 6.0.





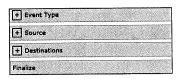
Rebroadcast from a DME

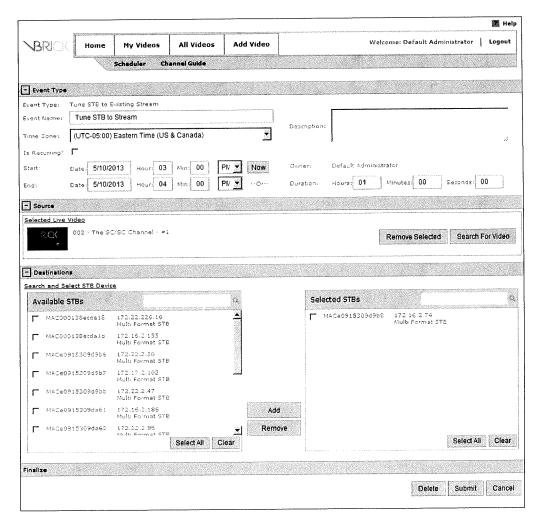
If you will be rebroadcasting content from a DME (v3.0 or higher) server, an administrator must define the DME management credentials (default = admin | admin) and port number (default = 0) on the Publishing Points page in the DME server configuration.



Tune STB to Existing Stream

Use this option to tune a set top box to an existing live stream. This means that at the scheduled date and time a live stream will begin playing on the selected set top box(es). To use **Tune STB to Existing Stream** you will need to select a live video **Source**, followed by one or more set top box **Destinations**, and then add **Content Metadata**.



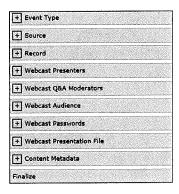


Live Webcast

Note This section explains how to *schedule* a webcast. It is not about presenting or viewing an actual presentation. For an explanation of how to present or view a webcast, see Authoring Live Webcasts on page 81.

Live Webcast is an optional module that requires a separate license and may not be available on your system. Note that even if you have this module, individual users may be restricted in the functions they can perform. For example some users may not be authorized to create webcasts in which case this feature will not be displayed. Other users may only be authorized to edit or delete their own webcasts. The Live Webcast feature lets you deliver rich media presentations (webinars with live video and synchronized PowerPoint content) to large-scale audiences worldwide. It provides interactive Q&A and polling and the webcasts can be recorded for future use. Your live webcasts can be scaled for thousands of users using redundant servers. Live webcasts are automatically displayed on the Live Video page; recordings of live webcasts are shown on the Stored Video page.

In most cases you will be scheduling a webcast that will take place at a later time. This will let you reserve the resources (for example VBrick appliances) that you will need for the presentation. When you are finished configuring the presentation, and have "published" your PowerPoint slides (if using an encoder for the presentation), the application will generate an e-mail to your invited viewers with a link to the presentation. The last step is to go to the "presenter" page from the *client* application (Figure 14), at the scheduled date and time, and deliver (i.e. "present") the presentation. Be aware that in many cases a presentation will be pushed from a VBrick appliance to a VOD-WM server, a VBrick reflector, or a DME. If so you will need to configure these devices in advance. See the corresponding VBrick documentation for details. To create a **Live Webcast** you will need to configure the following dropdown pages.



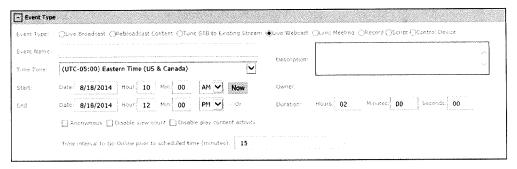
Configuring Webcasts

This topic explains how to create a Live Webcast. When you are done, the webcast will be shown in the Portal Server on the **Scheduler** page. To edit or modify the webcast from the **Scheduler** page, click on the event name, and then click **View Event**. This will let you modify or delete the event. To actually deliver a webcast, go to the **All Videos > Live Video** page and click on the event. See <u>Authoring Webcasts</u> on page 82 and/or <u>Authoring RMS/RMD</u> <u>Webcasts</u> on page 87 depending on what type of event you will be authoring.

- Note If you will be using the stream from a VBrick encoder, you will need to configure a Slot and a Viewing URL, in advance, on the "Devices > VBricks" page in the Portal Server admin interface.
 - If you will be using the stream from an RMS/RMD/DME, you will need to configure a **Presentation Device**, in advance, on the "Devices > Presentation Devices" page in the Portal Server admin interface.
 - If you use the Outlook Add-In for scheduling webcasts, the event title, event time, Presenters, Q&A Moderators, and Audience fields will be pre-populated but you must still complete the scheduling of the webcast as explained below.

Event Type

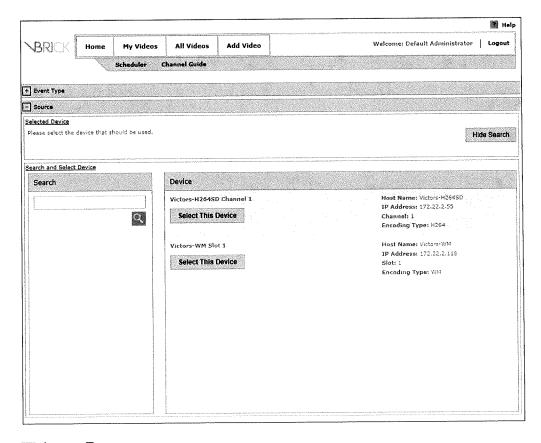
The first step is to create an **Event Type** that describes the type of event—in this case a Live Webcast. You will also need to configure the date and time of the event. (See <u>Event Type</u> on page 64) In most cases it should be scheduled in your local time zone. For remote viewers the time will be converted and displayed in their own time zone. This panel also has options (see below) that are recommended and can improve performance for large webcast events.



Anonymous	Disables authentication for users who login via an auto-generated email link.
Disable view count	Disables the Logged In Viewers counter on the Live Webcast Presenter Page (see Figure 14 on page 83).
Disable play content activity	Disables the "Play Activity" report.
Time interval to Go Online prior to scheduled time (minutes)	Present during Live Webcasts and Lync Meetings. Available so that presenters may specify how many minutes ahead of time they may start the meeting before attendees may join. This allows presenters to have a "Please standby - Presentation will begin shortly." message in place for attendees if desired.

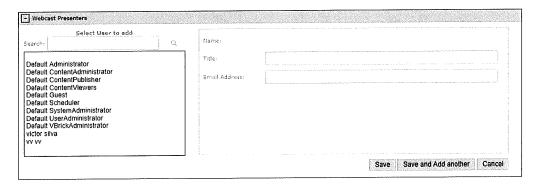
Source

Select a configured device for the source video. A configured device may be a VBrick (WM or H.264) encoder that has a camera attached (or a DME) and is typically streaming a view of the webcast presenter. It may also be the stream coming from an RMS/RMD device. When adding a source you can also define Content Metadata. This may include Reference Material or Permissions that determine who can view the webcast. If the encoder or STB you select is scheduled to be in use at the specified date and time, you will receive an error message when you try to "finalize" the presentation.



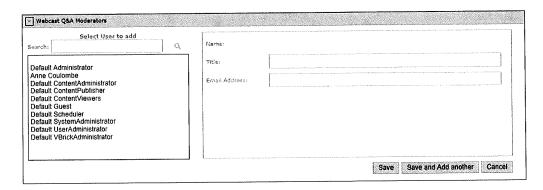
Webcast Presenters

Use this page to add one or more presenters whose names will be shown on the Live Webcast page. Click the plus button to add additional presenters. The Presenter Login Name is the user name used to login to the Portal Server. (This name is also used to determine authoring privileges. Some users may not have edit or authoring permissions for webcasts.)



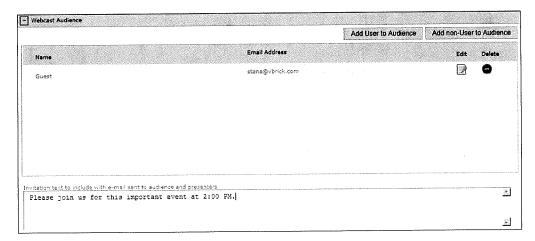
Webcast Q&A Moderators

Use this pane to invite your Q&A monitors to the event.



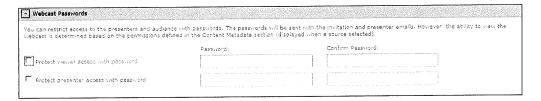
Webcast Audience

Use this pane to invite individual attendees to the live webcast. You can search and find users on your local network and you can add users outside your network. The invitation will be sent automatically after you have published the presentation and will contain all necessary access data and passwords (see below), as well as the custom text you can add to the invitation. It will have URLs for both Internet viewers and for local viewers. Note that if "Anonymous" login is checked on the Event Type panel, no user authentication will be required.



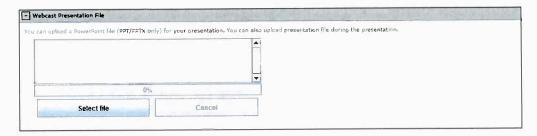
Webcast Passwords

You can restrict access to specific presenters and to specific audience viewers with passwords. The passwords will be sent with the invitation and presenter e-mails. However, the ability to view the webcast is determined based on the permissions defined in the Content Metadata section (displayed when a <u>Source</u> is selected).



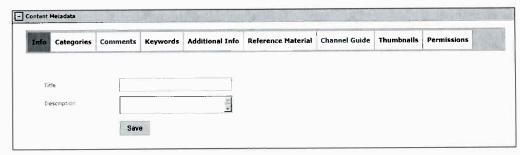
Webcast Presentation File

Click Select File to browse to the PowerPoint (PPT/PPTX) presentation file you will use in your webcast. You can also upload a presentation on the webcast authoring page.



Content Metadata

Enter any relevant and searchable metadata. See <u>Content Metadata</u> on page 36 for more information. You can also add **Reference Material**, define **Permissions**, assign **Categories**, etc.



Finalize

When you have completed all required fields and are happy with the webcast configuration click **Submit** and your presentation along with the slides (if available) and reference material will be uploaded to the VEMS server. If there are errors, for example required fields not completed, you must fix them before continuing. Note that if you failed to enter required metadata, you will need to click Save after entering the metadata. If successful, the live webcast will be shown on the **Scheduler** page and on the **Live Video** page. Viewers will tune in to the webcast using the links in the e-mail invitation.



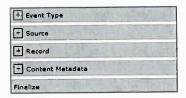
Lync Meeting

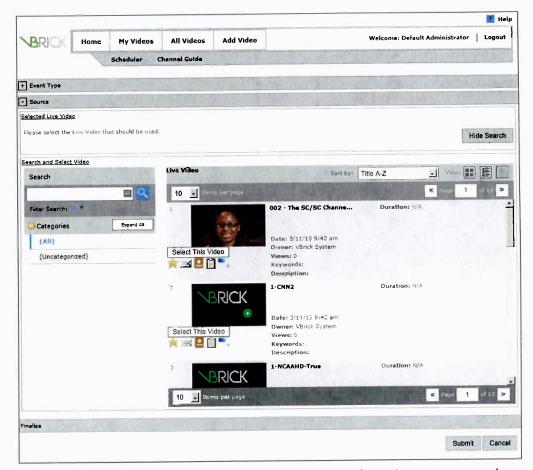
If you have purchased and activated a license for a Microsoft Lync integration with VEMS and a DME, you may schedule a Lync Meeting event type and broadcast it to more than 250 users simultaneously. The DME integrates Lync servers and clients while VEMS schedules Lync meetings and displays presentation pages to attendees through Scheduler. VEMS is also able to leverage existing VEMS zone logic features for all your Lync meetings. If you record the meeting through Lync, you may also later upload it to VEMS. See: <u>VEMS</u> <u>Lync Integration</u> for more information.

Record

Use this feature to create a schedule that will initiate the recording of live content. This means that at the scheduled date and time the live content will be recorded, optionally FTPed and ingested, and made available on the **Stored Video** page to authorized users for viewing.

To schedule a Record you will need to select the Source live video, define the Record details, and then add Content Metadata (if you elect to replace the existing metadata).





Be aware that when selecting an encoder for a live Webcast, it may or may not have a local harddrive. If it does *not* have a local harddrive, you may only select "Server Record" as a Record Option. "Record to VBrick" will not be available unless a local harddrive is present.



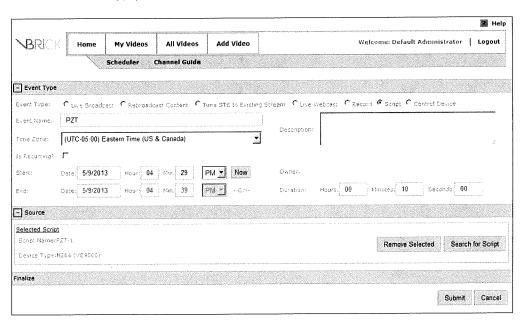
Note If <u>Advanced Content Distribution</u> has been enabled, a category *must* be assigned to content before it may be uploaded or recorded (including scheduled).

Script

Scripts and Script Devices are created by Portal Server administrators. Use the following steps to create a schedule that will execute a previously-defined script on a previously-defined script device such as a camera or a VCR. This means that at the scheduled date and time the script will run against a networked script device. For example, PTZ cameras respond to pan, tilt, and zoom commands; these commands can be scripted and executed from the Portal Server. A script device must be physically connected to the network and must be available at the runtime of a scheduled event. See the *Portal Server Admin Guide* for a discussion of how to define script devices and create scripts.



- ▼ To schedule a script execution:
- 1. Select a schedule name, dates, and (optionally) recurrence pattern.
- 2. For Schedule Type, select Script.



3. Select a previously-defined script and click **Submit** to add the new schedule to the calendar.

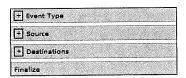
Control Device

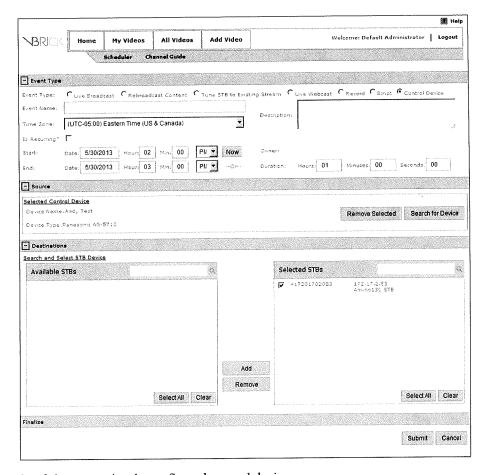
Control devices are external video sources like DVDs or VCRs that can be controlled by end users from the Portal Server. A control device is connected to a VBrick encoder. It allows client-side control of the device and must be configured by a system administrator. (If no

78 VBrick Systems, Inc.

control devices are configured, Control Device is not shown as a Schedule Type.) Once configured, a special icon on the Live Media page indicates that you can control a stream from the device using a "virtual" control panel. See Controlling Live Streams on page 47 for more about this.

- ▼ To schedule a control device:
- 1. Select a schedule name, dates, and (optionally) recurrence pattern.
- 2. For Schedule Type, select Control Device.





- 3. Select a previously configured control device.
- 4. Select the destination set top box(es) that will receive the video and click **Submit** to add the new schedule to the calendar.

Chapter 8

Authoring Live Webcasts

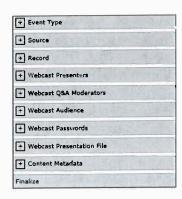
Topics in this section

Overview	81
uthoring Webcasts	82
ublishing Webcasts	
Questions and Answers	
liewing Webcasts	

Overview

Live Webcast is an optional module that requires a separate license and may not be available on your system. Be aware that even if you have this module, individual users may be restricted in the functions they can perform. For example some users may not be authorized to create Webcasts in which case this feature will not be displayed. Other users may only be authorized to edit or delete their own Webcasts. The Live Webcast feature lets you deliver rich media presentations (webinars with live video and synchronized PowerPoint content) to large-scale audiences worldwide. It provides interactive Q&A and polling and the Webcasts can be recorded for future viewing. Your live Webcasts can be scaled for thousands of users using redundant servers. Live Webcasts are automatically displayed on the Live Video page; recordings of live Webcasts are shown on the Stored Video page.

In most cases you will be scheduling a Webcast that will take place at a later date and time. This will let you reserve the resources (for example VBrick appliances) that you will need for the presentation. When you are finished configuring the presentation, and have "published" your PowerPoint slides (if using an encoder for the presentation), the application will generate an e-mail to your invited viewers with a link to the presentation. The last step is to go to the "presenter" page from the *client* application (Figure 14), at the scheduled date and time, and actually deliver (i.e. "present") the presentation. Be aware that in many cases a presentation will be pushed from a VBrick appliance to a VOD-WM server, a VBrick reflector, or a DME. If so you will need to configure these devices in advance. See the corresponding VBrick documentation for details. To create a **Live Webcast** you will need to configure the following dropdown pages.



Authoring Webcasts

This topic explains how to actually author a Webcast. When a Webcast (previously created with the Scheduler) is available online, a link will be shown on the Live Video page. The presenter can use this link to actually deliver the Webcast. Rich Media Studio (RMS) and Rich Media Desktop (RMD) Webcasts are authored slightly differently (see Authoring RMS/RMD Webcasts on page 87 for more about using these products). In order to author a Webcast you must be defined as a presenter.

- ▼ To author a live Webcast:
- 1. Find and launch the previously created Webcast on the Live Video page if you are defined as a presenter. Hint: you can search for all live Webcasts by searching for Webcasts.

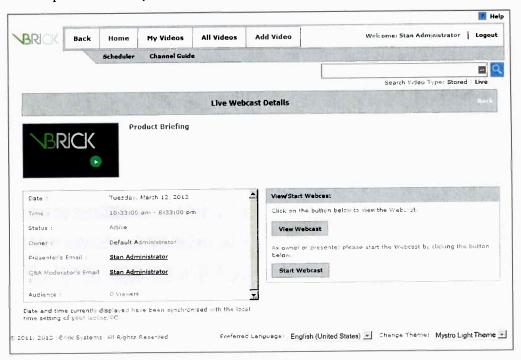


Figure 13. Start Webcast Page

- 2. Click on **Start Webcast** to open a page that the "presenter" will use (Figure 14) to deliver the presentation. Event details are shown in the information area on the left side of the page.
- 3. Customize the presentation using any of the features explained below.
- 4. When you are ready, click Go Online (and confirm) to start the Webcast.

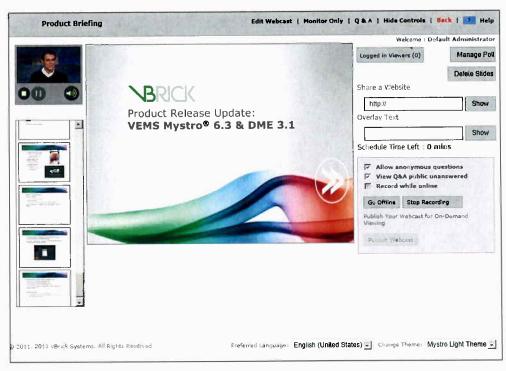


Figure 14. Live Webcast Presenter Page

Edit Webcast	Launches the Scheduler page so you can edit the Webcast configuration.	
Monitor Only	If checked, you cannot change anything and can only monitor the progress of the Webcast.	
Q & A	This panel shows questions submitted by viewers. See Questions and Answers on page 84 for details.	
Show Hide Controls	Show or hide the presenter controls.	
Back	Go back to previous page.	
Help	Displays a help page in a new window.	
Logged in Viewers	Shows the number of Webcast viewers currently logged in. (This counter can be disabled by an administrator and may not be shown.)	
Manage Poll	Create polls and send to viewers. See Manage Poll topic below.	
Delete Slides	Add a PowerPoint slide presentation or browse to a different presentation. The uploaded presentation will replace the current presentation.	
Share a Website	If you enter a URL and click Show , a window will popup on all viewer desktops with the specified webpage.	
Overlay Text	The text you enter will replace the PowerPoint presentation. When done, click on any slide to continue with the presentation.	

Schedule Time Left	Displays the number of minutes left in a live presentation. Shown and in red when five minutes or less. When the schedule expires, the streaming video stops. If you want to extend the presentation, be sure to edit the presentation and modify the schedule before the schedule expires.
Allow Anonymous Questions	If checked, will allow anonymous questions to be submitted from Webcast viewers.
View Q&A public unanswered	Determines if a public (and anonymous) unanswered question can be seen by a viewer who did not create the question. If checked, all public questions will be displayed; if not checked, only public questions that have been answered will be displayed. This option can help to limit the number of incomplete questions and answers seen by the audience.
Record while online	Check box to start recording the Webcast as soon as you go online.
Go Online/Offline	Make the Webcast available/not available to online viewers.
Start/Stop Recording After you go online you can manually start recording the immediately.	
Publish Webcast	Publish your Webcast to the Stored Video page. Greyed out until you go offline.

- 5. Deliver the Webcast using any of the tools and functionality described above. For example you can click Manage Poll to create a poll for viewers (see Polling below) or you can click Delete Slides to upload a new PowerPoint presentation.
- 6. Click Start Recording (if you wish to record the Webcast and Record while online is not checked).
- 7. When done click Go Offline (and confirm).
- 8. If you recorded the file, you can now publish it to configured VOD servers and it will appear on the **Stored Video** page (see <u>Publishing Webcasts</u> below).
- 9. Indicate whether the Webcast was recorded on the Server or a VBrick or on another device (e.g. and RMS or RMD).

Questions and Answers

84

Click on Q & A at the top of the presenter page to display the Question & Answer pane within the presenter interface as shown below. You can also click the toggle button to expand the pane or click Open List in new Window to show all question on a separate page. This is useful if there are numerous questions. You use this pane to answer questions from Webcast viewers. If a moderator is associated with the Webcast, the user assigned to this role is typically responsible for handling questions and answers (see Webcast Q & A Moderator for more about this). Questions can be Public, Anonymous, or Private. Public and anonymous questions are seen by everyone (Webcast viewers, presenters, and moderators). Private questions are only seen by the sender, presenter, and moderator. The Webcast presenter can enable or disable anonymous questions from the presenter interface. For a live Webcast, questions and answers are associated (and saved) with a specific session of the live Webcast. A session is created anytime the Webcast goes online from an offline state.

Note Questions and answers from the live Webcast are saved in .xml format when the Webcast is published and will be displayed when the stored Webcast is played.

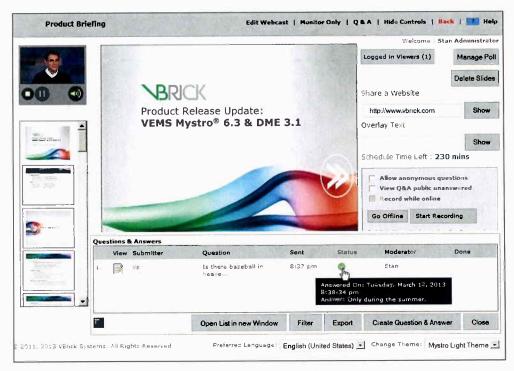


Figure 15. Live Presenter Page with Questions & Answers Pane

View		Use this button to display or answer a question.				
		View Question & Answer	View Question B. Anguage			
		Question				
	Amsirer		Who's on first?		31 31	
					<u>.</u> 되	
				Send Answer	Cancel	
		Public – ques	stion will be seen by ever	yone.		
		Private – question will be seen by presenter/moderator onl				
		Anonymous – question will be submitted anonymously (if				
		allowed by pr	-		. ,	
Submitter	User	name who submitted the question.				
Question	- 1	actual text of submitted question. Mouseover the text to see the complete question.				
Sent	Tim	Time the question was submitted.				
Status	0	Question answered.				
	5	Question not an	swered.			
Moderator			or defined for the Webca become the moderator.	st click Assign t	0	

Done	Click this button when you are done to mark the question as answered.	
Open List in new Window	Open the Q & A pane in a new window or use toggle button to expand existing pane. The most recent question will be at the top.	
Filter	Use this feature to filter the results shown in the pane.	
	Filter QBA Liet Submitted:	
Export	Exports the presentation to email address of presenter (if configured).	
Create Question & Answer	Use this feature to create a question and an (optional) answer or to view and modify a previously sent question (e.g. to fix a typo).	
	Create Question & Answer	
	Andrews Edition of the Control of th	
	Send Answer Cancel	
	View Question & Answer	
	Question. C Public' C Proster [Anonymous?]	
	Ro this is Rm 210. Recm 200 is busy.	
	Modify Answer Cancel	

Webcast Q & A Moderator

If a moderator is defined for the Webcast, the user assigned to this role will have the ability to manage Questions and Answers submitted during the Webcast. The moderator's role is limited to answering questions and the moderator does not participate in authoring the Webcast. The moderator accesses the Webcast through the View Webcast function (see Figure 13)—not the Start Webcast function—and will have the same Q & A functionality as the presenter. If there is no moderator assigned, the Webcast presenter can become the moderator by clicking Assign to yourself (in the Q & A pane) and answering the question. Figure 16 below shows the Moderator page with the Q & A pane at the bottom.

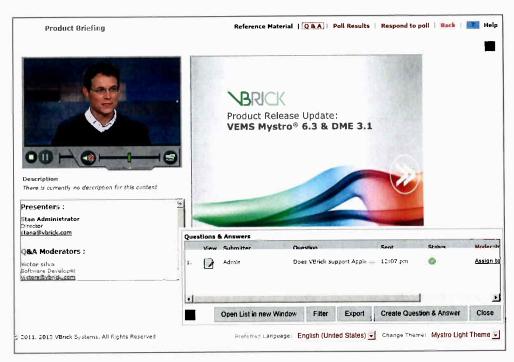


Figure 16. Moderator Page with Q & A Pane

Authoring RMS/RMD Webcasts

Rich Media Studio and Rick Media Desktop presentations are configured and authored in two places: on the VEMS client interface and on the source RMS/RMD interface. The following steps outline the workflow.

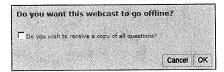
- ▼ To author an RMS/RMD Webcast:
- Go to the RMS/RMD machine and author the Webcast. See the RMS or RMD documentation for more about using these applications.
- 2. When you are ready to deliver a previously created live RMS/RMD Webcast, go to the VEMS client interface.
 - a. Find and launch the presentation on the Live Video page.
 - b. Click Go Online (and confirm) to start streaming video.
- 3. When done, go back to the VEMS client interface and click Go Offline.
- 4. If you recorded the file, you can now publish it to configured VOD servers and it will appear on the **Stored Video** page. See <u>Publishing Webcasts</u> below.

Publishing Webcasts

When you are finished authoring a presentation you can publish the recorded Webcast files to all VOD or DME servers that can store the encoded file type. For example, Windows Media (.wmv) files can be published to a VOD-WM server; H.264 (.mp4) files can be published to a VOD-W server. The published Webcast will subsequently be available on the **Stored Video** and will include any questions and answers submitted while the Webcast was being recorded. To publish the saved Webcast to a VOD or DME server click **Publish Webcast** and follow the prompts.

Note RMS Silverlight Webcasts use a slightly different publishing mechanism. See the special instructions below for <u>Publishing RMS Silverlight Webcasts</u>.

- ▼ To publish a Webcast to configured VOD servers:
- 1. When finished authoring a Webcast, click **Go Offline**. This will display a confirmation popup with the option to receive a copy of all questions. If checked, an .xml file with all questions from the previous Webcast will be sent to the presenter's configured email account.



- 2. Click **OK** to continue and the Webcast will go offline.
- 3. After a few moment the **Publish Options** page (Figure 17). The options shown on this page will vary depending on the type of presentation.

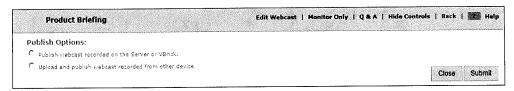


Figure 17. Publish Options Page

Publish Webcast recorde d on the server or VBrick	Publishes a Webcast recorded on the VEMS server or on a VBrick appliance. Be aware that when selecting an encoder for a live Webcast, it may or may not have a local harddrive. If it does not have a local harddrive, you may only select "Server Record" as a Record Option. "Record to VBrick" will not be available unless a local harddrive is present. View Record options for details.
Upload and publish Webcast recorded from other device	Publishes a Webcast recorded outside the VEMS server. If using this option you will need to use the Select file control to navigate to the location where the file was recorded.
Upload and publish Silverlight Webcast from RMS	Publishes an RMS Silverlight Webcast. See below <u>Publishing</u> <u>RMS Silverlight Webcasts</u> .

- 4. Choose a Publish Option, define any content metadata, and click Submit.
- 5. The Presenter page (Figure 14) will refresh with the message: Webcast published successfully!
- 6. The Webcast will now be available on the Stored Video page in VEMS.

Note If <u>Advanced Content Distribution</u> has been enabled, a category *must* be assigned to content before it may be uploaded or recorded, including publishing Webcasts.

Publishing RMS Silverlight Webcasts

Since an RMS Webcast is recorded and saved on the RMS device, there is a slightly different publishing mechanism used to publish a completed RMS Webcast to the VEMS server.

- ▼ To publish an RMS Silverlight Webcast:
- 1. Go to the RMS device using Windows Remote Desktop Connection.
- 2. Open a browser in the Remote Desktop window and navigate to the VEMS Publishing page (Figure 17).
- 3. Select the Publish Option: "Upload and publish Silverlight Webcast from RMS."
- 4. Browse to the folder with the RMS Silverlight files and upload everything in the folder.
- 5. Click Submit.
- The RMS Silverlight Webcast will now be available on the Stored Video page in VEMS.

Polling

Create Poll

Polling is an interactive feature that lets you communicate with viewers and share the results. Select Manage Poll to conduct a realtime multiple-choice poll of your viewing audience. You can type in a question and up to four answers. If you type the questions and answers in realtime, your audience will have to wait while you type the questions. If you prepare the questions and answers in advance, the polling form is automatically populated when you click Import. Saved Webcasts will also include poll results if any. It is important to note that viewers must be online before a poll is initiated. Otherwise they will not see the poll.

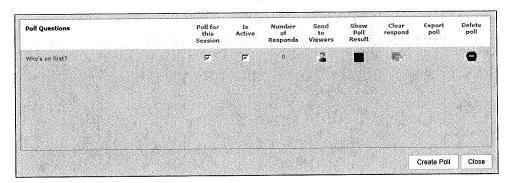
- ▼ To create a poll:
- 1. Click on Manage Poll > Create Poll to create a poll of viewers.

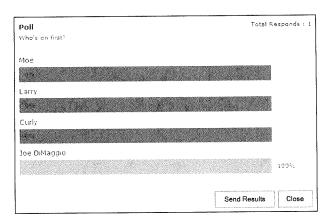


2. Create a multiple choice poll by typing in the question (which becomes the name of the poll) and the possible answers. You can also use the Import feature to import an existing poll. If importing, create a text file with the question on the first line and each of the four possible answers on a separate line—do not use blank lines. Then Browse to the file, click Import to populate the form, and then Send Now to distribute to viewers.

Manage Poll

Use the functionality on this page to manage the poll you just created. For example you can send, export, or delete polls. After your responses have been received, click **Send to Viewers** to share the results with your viewers.





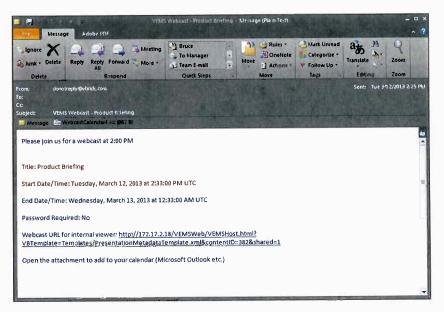
Viewing Webcasts

Although presentation viewers can launch a presentation directly from the Portal Server client page, the preferred method is to use the auto-generated "invitee" e-mail that all invited viewers will receive. The e-mail invitation will direct viewers to an optimal load-balanced server. Invited viewers will receive an e-mail similar to the following with different links for internal and external viewers. Internal viewers are those in your local network; they will view the presentation via multicast. External viewers are those on the public Internet; they will view the presentation via unicast. Users who receive the e-mail can double-click on the calendar attachment in the invitation to launch Microsoft Outlook "add to calendar" and automatically schedule a reminder.

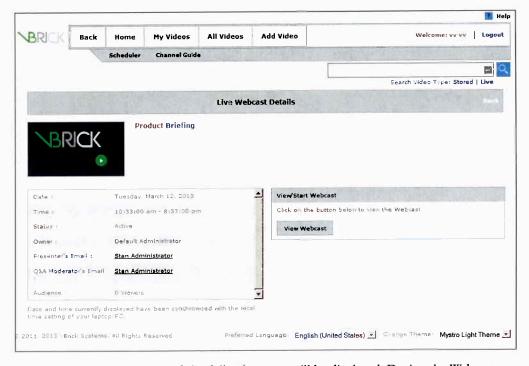
View Live Webcast

- ▼ To view a live Webcast:
- 1. Click on the link in the e-mail invitation you received or search for **Webcasts** on the All Videos > Live Video page. (Hint: click on the Webcast Calendar icon to add the Webcast to your Microsoft Outlook calendar.)

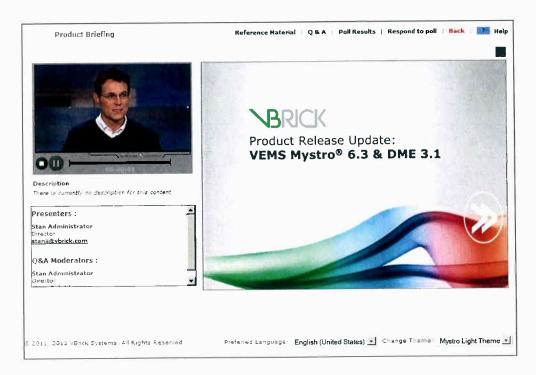
90 VBrick Systems, Inc.



2. If prompted for a password, enter the password provided in the e-mail or one you obtained in advance from an administrator.



3. Click on View Webcast and the following page will be displayed. During the Webcast, you can ask a questions (as shown here) or use any of the other available functionality.



Ask Questions

Click on the Q & A link at the top of the page to send a question to the presenter and/or the moderator. Public questions are seen by everyone; Private questions are seen by the presenter and/or moderator; Anonymous questions are seen by everyone and are sent anonymously (although this can be disabled by the presenter).

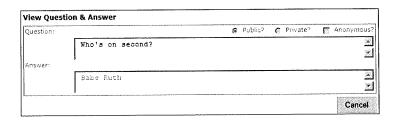
Note After you have submitted a question you may need to refresh the browser page before you can see the answer from the moderator or presenter.

- ▼ To ask a question:
- 1. Click on the Q & A link at the top of the page.
- 2. Type your question and click Send Question.



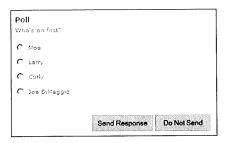
3. When the presenter or moderator replies, click on the View button next to the question in the Questions & Answers pane.

92 VBrick Systems, Inc.



Respond to Polls

If the presenter has created and sent a multiple-choice poll, it will look something like this. You can send a response if desired and when all responses have been received, the presenter may decide to share the poll results with Webcast viewers.



View Stored Webcast

You can view stored Webcasts by searching for **Webcasts** on the All Videos > Stored Video page. Any **Reference Material** and **Poll Results** will be available, but since this is a stored video, you will not be able to ask questions interactively or respond to polls. Public Q and A information from the original live Webcast may be saved with the Webcast if it is published. Public questions can be viewed by anyone who has view access to the stored content.



Toggle View

When viewing a live or stored Webcast with PowerPoint slides, you can toggle between stream view and slide view (see below) by clicking the icon in the upper right area of the page. Similarly, you can use the Full Screen icon (next to volume control) to go full screen.





Chapter 9

Channel Guide

Topics in this section

Overview	. 95
Adding Channels	.96
Playing and Recording Channels	100

Overview

The Channel Guide is an optional feature that requires a license and plays live video. It displays a live programming schedule that includes custom channels and TV channels. Custom channels are defined by any user who has privileges to edit both the content and the Channel Guide. Custom channels may also include programming data consisting of the scheduled programs names and times. TV channels are provided by a VBrick server and are auto populated with programming information from the server. When viewing the Channel Guide, use the left and right arrows or the search box (see Figure 18) to see what's on. You can view scheduled programming for the prior day and up to 13 days in advance.

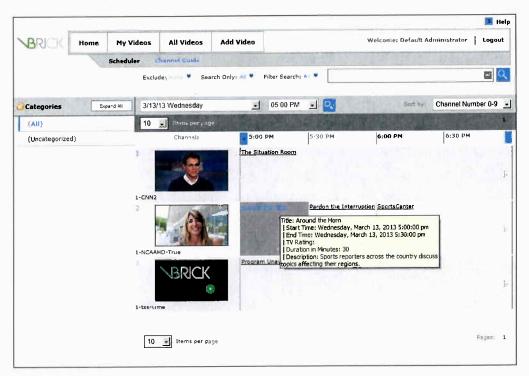


Figure 18. VEMS Mystro Channel Guide

The channels shown in the Channel Guide depend on the permissions associated with the user who is currently logged in. If a user does not have "view" permissions for specific content, it will not be shown in the Channel Guide interface. The Channel Guide displays a list of all the live (custom and TV) channels that have been explicitly defined as videos to be

included in the Channel Guide. This includes live scheduled events (e.g. Webcasts) or rebroadcasts of previous live events. When a stream is playing, you can use the community tools in the preview window to add to favorites, recommend, make required, etc. Note that if a live stream is currently being shown in the Channel Guide, it will also be shown on the AII Videos > Live Video page.

Notes • The Channel Guide is an optional, licensed feature. If a Channel Guide license is not installed, the **Channel Guide** tab will not be displayed on the user interface.

- Channels Guide depend on the permissions associated with the user who is currently logged in. If a user does not have "view" permissions for a specific content, that content will not be shown in the Channel Guide interface.
- You can have a Channel Guide without a Channel Guide server as long as all of your channels are custom channels. See Adding Custom Channels on page 97.

VBrick Channel Guide Server

If you have a Channel Guide license, the VBrick Channel Guide Server is available to display news, information, and entertainment content. VBrick has partnered with a leading content provider, to provide news, information, and entertainment programming. The program listing includes some 80+ television programs. These programs are generally "network" listings, such as CNN, CSPAN, Animal Planet, etc. The program data comes from the VBrick Channel Guide Server. This server is a VBrick machine that connects to a third-party content provider. The available content is fixed and cannot be changed. As noted, you can have a Channel Guide without a Channel Guide server as long as all of your channels are custom channels. The VBrick Channel Guide Server must be enabled on the Portal Server admin interface (see Enabling the Channel Guide Server below) before it is displayed in the client interface.

Enabling the Channel Guide Server

A Channel Guide Server is required if you will be displaying TV channels from the default VBrick server which is the content provider. TV channels are typically sourced from the VBrick Channel Guide Server. The Channel Guide Server requires a license which must be purchased in advance. If you will be using custom channels only, sourced from VBrick encoders or similar live devices, you need a Channel Guide license but not a Channel Guide Server.

The Channel Guide Server is enabled by default and displays programming data in the Channel Guide. This programming data can be updated periodically (or on demand using the "Refresh Channel Guide" option in the Task Scheduler). As noted, the Channel Guide is an optional feature that requires a license and may not be supported at your site. If you have a Channel Guide license, the Channel Guide functionality must still be enabled by an administrator.

- ▼ To enable or refresh the Channel Guide Server:
- 1. Go to Devices > Channel Guide Server and enable the default VBrick server.
- 2. Refresh the Channel Guide Server. Go to Systems Settings > Task Scheduler and run Refresh Channel Guide.

Adding Channels

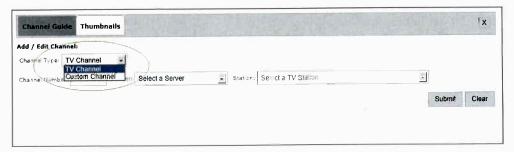
Only those users who are assigned the role of "Channel Administrator" can add or modify channels. This administrator must have access to both the content and to the Channel Guide.

96 VBrick Systems, Inc.

As noted earlier the channel guide has two types of channels: custom channels and TV channels. Custom Channels are those for which you define program information and associate a stream. Custom channels are sourced from any available live source. TV Channels are those acquired from the VBrick Channel Guide Server. TV Channels already have program information generated by the server. The Portal Server discovers all available live streams on the network and any of these discovered streams can be configured and shown in the channel guide. On a network with numerous live streams, the easiest way to keep the list of channels organized is by assigning channel numbers. Channel numbers provide a TV-like experience for viewers and must be unique. When adding custom channels or TV channels, you can configure the channel number, and add a thumbnail as follows.

▼ To add a channel:

- 2. Select the Channel Type, either TV Channel or Custom Channel.



3. Configure the channel as explained below. Depending on the selected **Channel Type**, see Adding Custom Channels or Adding TV Channels.

Note When creating a channel, if you have two programs with the same program name, they will both be mapped to a single program in the Channel Guide with the same **Station**Name and Channel Number.

Adding Custom Channels

Custom channels are typically sourced from a VBrick encoder or a similar live source. In all cases you will have to manually add programming data for custom channels. When using the Scheduler to create a live event (i.e. a Live Broadcast, Rebroadcast Content, or a Live Webcast), you will have the option to define channel guide information for the event. If you don't enter programming data, the system will automatically generate programming data for the Channel Guide based on the schedule and other data.

- ▼ To add a custom channel:
- Go to the All Videos > Live Video page and click the "Add Channel" icon next to any
 available live video source. Available streams (those not already configured) are shown
 with a plus sign (+) next to the Add Channel icon. Streams already configured are shown
 with the unique channel number that was assigned.
- 2. Select Custom Channel from the dropdown, then add a Channel Number, a Station Name, and click Save & Continue. This will display the Add/Edit Custom Programming pane (Figure 19).

- 3. Use the Add/Edit Custom Programming pane to manually create programming data for the new channel. For example, you may want to add "Monday Night Football" in the 8–10 P.M. time slot on Monday nights, recurring from September through January.
- 4. Click Submit when done.
- 5. Optional. Click on the **Thumbnails** tab and click **Add Thumbnail** to select an image as the thumbnail for this channel. (When the channel is actually playing you can use the "create thumbnail" icon in the player controls to create a thumbnail from the stream itself.)

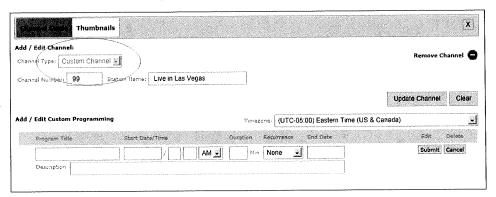


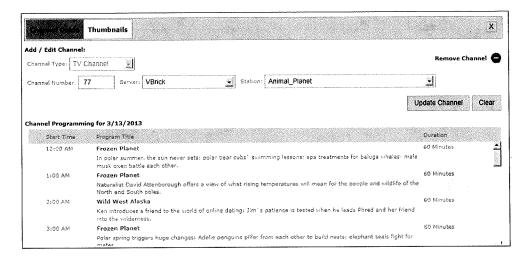
Figure 19. Add/Edit Custom Programing

Channel Type	Select Custom Channel
Channel Number	Enter a unique number (one that is not already being used).
Station Name	Enter a unique name that will be shown in the tooltip when you mouseover the thumbnail or in the Info popup.
Update Channel	Click on this button to update the channel with new information.
Timezone	Select your local time zone. Note: When displayed in the Channel Guide, the time is converted to each viewer's local time zone.
Program Title	Select a title that will be shown in the Channel Guide.
Start Date/Time	Use the calendar to select the start date and start time. Alternately, you can manually enter the values in the proper format configured for your system: for example this is a typical U.S. format. 3/10/2012 5:30:00 PM
Duration	Required. Program length in minutes. Maximum = 1440 (24 hr.). To add a custom channel that never ends, set Duration = 1440, with a daily Recurrence , and no End Date .
Recurrence	None Daily Weekly. If weekly, occurs on the same day as specified in Start Date.
End Date	Use the calendar to select recurrence end date.
Description	Shown on the popup when you click the Info button in the Channel Guide.

Adding TV Channels

TV channels are typically sourced from the VBrick Channel Guide Server and programming data is automatically provided by the server. Adding a TV Channel is the same as adding a

Custom Channel (see above) with two important distinctions. First, you must select a Station Name from the pre-populated list, an example of which is shown below. Second, there is no pane that will allow you to create custom programming. The programming for TV channels is automatically provided by the server and updated at a regular, configurable interval (see the "Channel Guide Servers" topic in the Portal Server Admin Guide for more information).



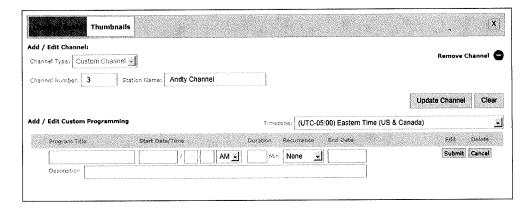
Channel Type	Select TV Channel	
Channel Number	Enter a unique number (one that is not already being used).	
Server	The VBrick server is the only current option.	
Station Name Enter a unique name that will be shown in the tooltip mouseover the thumbnail or in the Info popup.		
Update Channel	Click on this button to update the channel information when you modify any information in the Add/Edit Channel pane.	

Editing Channels

There are two way to edit an existing channel. You can click on the channel number on the All Videos page or you can launch a stream from the Channel Guide and click on the Channel Guide tab in Content Metadata. Either method will display the channel information (e.g. Channel Number and Station Name) and all currently defined programming data for the selected channel.

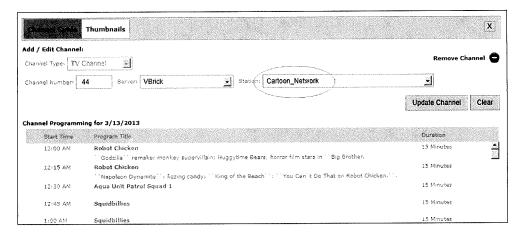
Editing Custom Channels

- ▼ To edit a custom channel:
- 1. Open the Channel Guide and click on the custom channel you want to edit.
- 2. Use the Add/Edit Channel pane to modify the channel information and click Update Channel when done.
- 3. In the Add/Edit Custom Programming pane, select the program you want to modify by clicking the Edit button. This will let you edit the programming information.
- 4. Modify the program data as desired and click Submit when done.



Editing TV Channels

TV channels are sourced from the VBrick Channel Server and you cannot change the program data. You can only change the channel information (e.g. Channel Number and Station Name) and/or you can select a different **Station** from the dropdown.



Playing and Recording Channels

The Channel Guide interface shows what's currently on, or what will be on, up to 13 days in advance. When viewing the Channel Guide, use the right or left arrows (or the search box) to search for programming information in different time slots. If desired you can use the check boxes (Figure 18) to show Webcast Only events or to Exclude Pending Scheduled Events. If you click on a channel before or after a scheduled program, you will play whatever is currently being broadcast—just like a regular TV. Click the Info button on the far right to schedule a recording or display channel information (Figure 21) entered by an administrator. This popup also has options that let you record an entire program in progress or schedule a future recording. You can also perform pushbutton recording using the "record" pushbutton in the preview window. If you have the right permissions, you can perform all of the following tasks from the Channel Guide:

- Navigate and view program information
- Play and record programs
- · Schedule program recording
- View recording information

100 VBrick Systems, Inc.

· View channel information

The message "Program Unavailable" in the Channel Guide (Figure 18) means there is no programming data associated with the stream. It does not mean the stream itself is unavailable. You can still click on the stream to launch it in the preview window. The message "Off Air" means a network TV Station (for example CNN or Animal Planet) does not have programming scheduled in that time slot. When a station is off the air, TV stations typically air local content.

Note The message "Program Unavailable" in the Channel Guide means there is no programming data associated with the stream. It does not mean the stream itself is unavailable. You can still click on the stream to launch it in the preview window.

Playing Channels

▼ To play a channel:

1. Open the Channel Guide and click on any channel icon (or thumbnail) to launch that channel in the preview window (Figure 20). Once the channel is playing you can use any of the player controls (e.g. volume, record, full screen, closed captions) or the community tools (e.g. favorites, recommend, make required). See <u>All Videos</u> on page 27 for a description of all tools and options.



Figure 20. Preview Window

2. An alternate way to play the channel is to click on the Info button (or on the hyperlinked Program Name) to display the Info page (Figure 21). You can use this page to play the stream (Watch Channel Now) or to record the stream at a later date and time. Note that the hyperlink will only play the channel if it is currently active; if not active you will get the Info popup (Figure 21) and the Watch Channel Now option will not be shown. Also, if the program is currently active you can click on the hyperlinked program title to launch the stream.

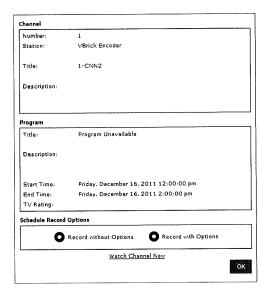


Figure 21. Info Popup

Record without Options	Starts (or schedules) a recording that will continue for the duration of the program. There are no other options available. (This is similar to pushbutton recording except that a pushbutton recording must be manually stopped.) Recordings made with this option are not shown on the calendar. You must have a Scheduler license and content publisher permissions (i.e. push button record privileges) to use this option. Permissions to use the "scheduler" are not required. A red icon indicates a recording is in progress or scheduled. Click on the icon to cancel the recording.
Record with Options	Lets you schedule and customize a recording for the current program or at a future date and time. See below Record with Options for more about this option. Click on the icon to cancel the recording. When you mouseover over the icon it turns green and you can cancel the recording.
Watch Channel Now	Launches the channel in the preview window for immediate viewing.

3. To play a different stream, simply click on the **Channel Guide** tab and choose another channel. To change channels you don't have to stop whatever stream is currently playing.

Recording Channels

The easiest way to record a stream is to use pushbutton recording. Simply play a stream and click the "record" button (it turns red when a recording is in progress). This only records what's currently in progress. As soon as you click the "record" button you will be prompted for content information (Figure 22) that will be saved with the recording. You can enter searchable information in the **Description** field and select **Categories** (i.e. folders) with which the content will be associated. Use click, Ctrl-click, or Shift-click to select multiple categories for the recording. If you select **Use Default Info**, the recording will be saved with a generic title in the Uncategorized folder.

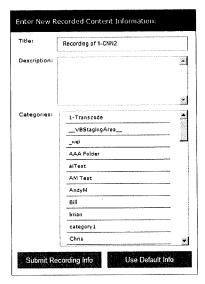


Figure 22. Recorded Content Information

Note If <u>Advanced Content Distribution</u> has been enabled, a category *must* be assigned to content before it may be uploaded or recorded.

Record with Options

An alternate recording method is to find the program you want to record in the Channel Guide and click the "Info" icon is in the far right column (Figure 18). The Info popup has options that let you record the entire program currently in progress or schedule a future recording. When you select **Record with Options**, it launches the Scheduler page (Figure 23), prepopulated with relevant information about the stream. Use this page to configure or modify the scheduling options or to add content metadata (see the <u>Scheduler</u> on page 63 for more about using the Scheduler). Schedules created with this page will be shown on the Scheduler calendar along with other scheduled events. Note that this feature requires a Scheduler license as well as a Channel Guide license. In addition, you must also be logged in as a user with <u>Schedule Privileges</u>.

▼ To Record with Options:

- 1. Use the controls at the top of the Channel Guide to search for the program you wish to record. You can use any of the search controls; you can search for Webcasts only; you can also exclude pending scheduled events.
- 2. Navigate to the date/day and time of the program (alternately you can use the left and right arrows in the program list below) and click the search button. You can only record programs which are occurring now or in the future.
- 3. Choose a program to record: click on the Info button to the right of the selected program and choose an option.
 - Select Record without Options to display a record icon next to the Info button in the Channel Guide indicating a recording has been scheduled at the specified date and time. You can click on this icon to cancel the recording.
 - Select Record with Options to display the Scheduler page (see below), prepopulated
 with information derived from the Channel Guide. You can use this page to modify
 any of the event information (Start Time, Content Metadata, Thumbnails, etc.)

associated with the event. When done click **Submit** and the record icon will display next to the Info button. This event will also appear in the Scheduler calendar as scheduled recording.

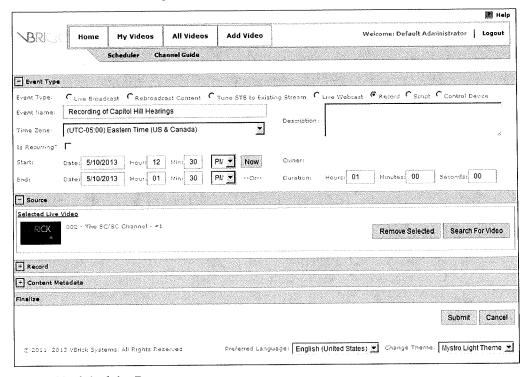


Figure 23. Scheduler Page

Chapter 10

Reporting

Topics in this section	
Overview	

Overview

VEMS Mystro has a robust reporting capability that provides a variety of reports and reporting options. In a typical scenario an administrator will run VEMS Mystro reports from the admin interface to check on login activity, content inventory, and other metrics. The functionality described here explains how to run these same reports from the user interface. A VEMS Mystro user can be configured by an administrator with permissions to run specific reports. After these "Report Permissions" are configured in the admin pages, that configured user will be able to access specific reports from the Reporting tab (see Figure 24) on the user interface.

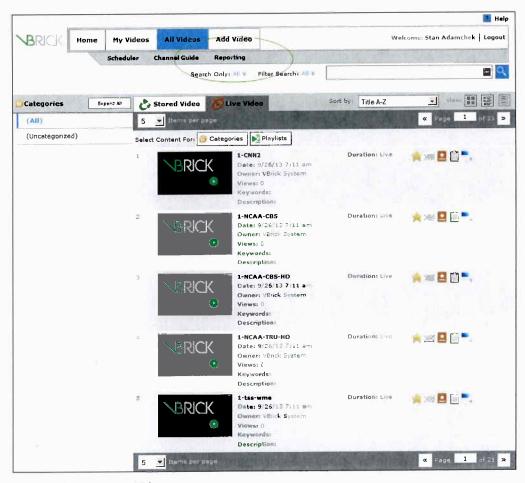
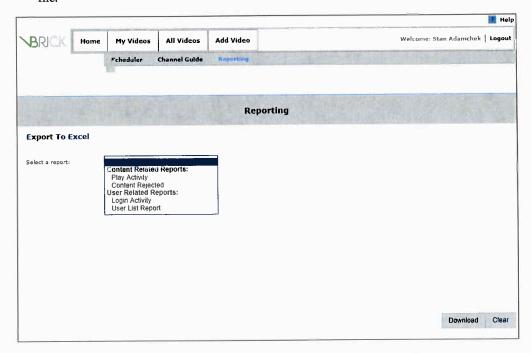
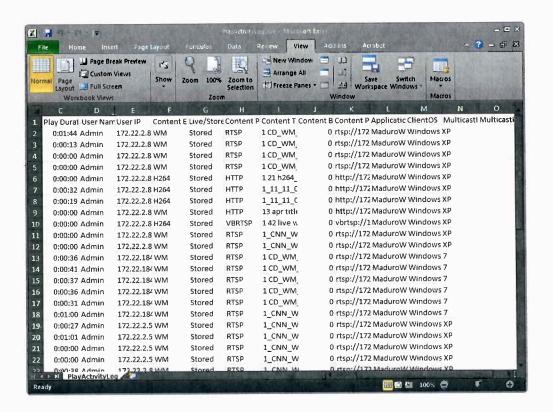


Figure 24. Reporting Tab

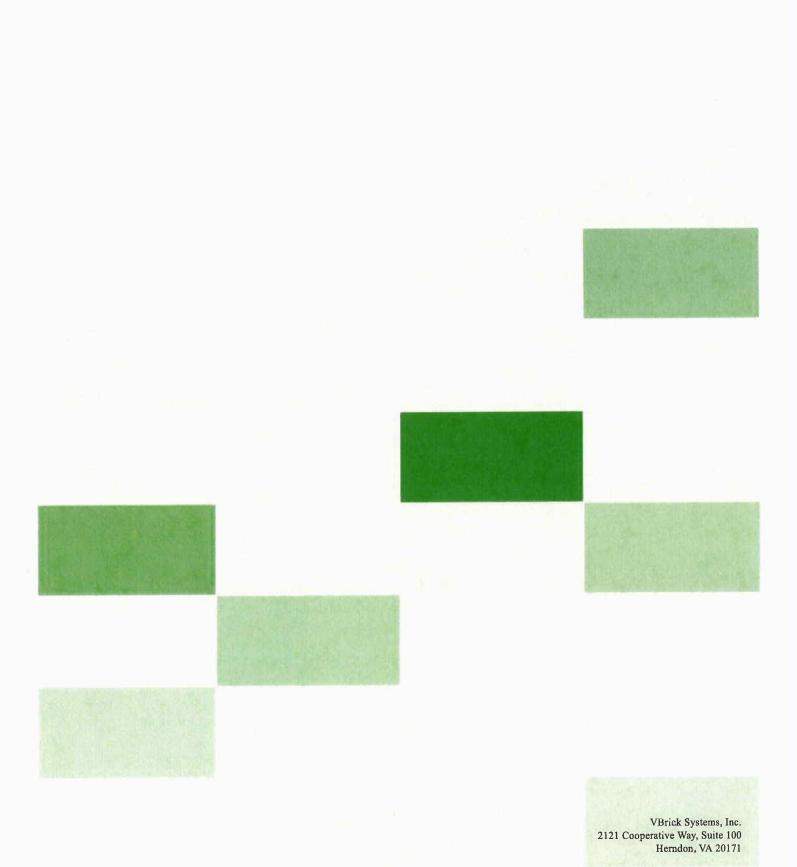
- ▼ To run a report from the user interface:
- 1. Click on the Reporting tab and select a report from those available on the dropdown list.
- 2. If necessary enter a **Start Date** and **End Date** either manually or using the calendar. (Note that these fields show the UTC date and time where you are located—not the local date and time where the server is located.)
- 3. Complete any other fields that may be required depending on the type of report you selected.
- 4. Click the **Download** button and choose to either **Open** or **Save** the comma-delimited .csv



5. Once saved you can open the report data in Microsoft Excel (see below) or you can import it into Crystal Reports or other applications. You can create any number of reports by merging the data from multiple report outputs.



108 VBrick Systems, Inc.

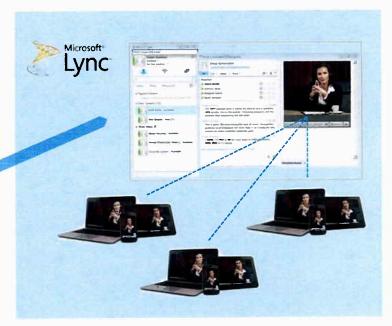


ATTACHMENT 3

Enterprise System Integration









ATTACHMENT 4

Enterprise Video Platform



VBrick™ Mix VBrick™ Presentation Appliance VBrick™ H.264 Encoders VBrick™ Rich Media Desktop

VBrick™ Video Management Platform VBrick™ Cloud Streaming Services VBrick™ SharePoint Integration VBrick™ Network Video Recorder

VBrick™ DME

VBrick™ Lync Gateway VBrick™ Video-on-Demand Server VBrick™ VTC Gateway

VBrick™ Digital Signage VBrick™ H.264 Decoders VBrick™ Multiformat Settop Boxes



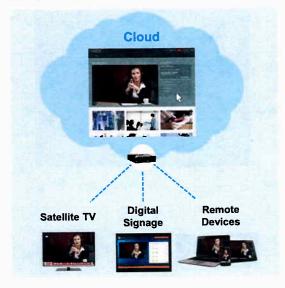
ATTACHMENT 5

Enterprise Video Platform

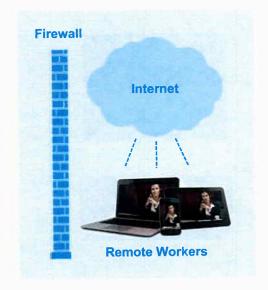








Remote Streaming





CERTIFICATE OF SERVICE

I, Paul C. Besozzi, certify on this 11th day of July 2016 a copy of the foregoing "Supplement To Request For Review" has been served via electronic mail or first class mail, postage pre-paid, to the following:

Matthew DelNero
Chief
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554
Matthew.DelNero@fcc.gov

Michael Jacobs
Legal Advisor
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554
Michael Jacobs@fcc.gov

Ryan Palmer
Chief
Telecommunications Access Policy Division
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554
Ryan.Palmer@fcc.gov

Aaron Garza
Deputy Chief
Telecommunications Access Policy Division
Wireline Competition Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554
Aaron.Garza@fcc.gov

Letter of Appeal Schools and Libraries Division-Correspondence Unit 30 Lanidex Plaza West P.O. Box 685 Parsippany, NJ 07054-0685 appeals@sl.universalservice.org

Paul C. Besozzi